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Educational News and Editorial Comment

INTELLECTUAL CO-OPERATION AMONG AMERICAN REPUBLICS

The following statement, made public by the Department of the Interior, was published in the *United States Daily*.

The executive committee of the American Council of Intellectual Co-operation today [November 4, 1930], in the Department of the Interior, under the chairmanship of Ray Lyman Wilbur, secretary of the interior, held its first meeting, effected organization, and took steps toward establishing and maintaining permanent headquarters.

The executive committee, in addition to its chairman, Secretary Wilbur, is composed of the following members:

Dr. Frank Aydelotte, president of Swarthmore College, Swarthmore, Pennsylvania; Dr. Isaiah Bowman, director, American Geographical Society of New York, New York City; Dr. William John Cooper, commissioner of education, Washington, D.C.; Dr. Stephen P. Duggan, director of the Institute of International Education, New York City; Dr. John C. Merriam, president, Carnegie Institution of Washington, Washington, D.C.; Dr. Ellen F. Pendleton, president, Wellesley College, Wellesley, Massachusetts; Dr. James Brown Scott, secretary of the Carnegie Endowment for International Peace and president of the American Institute of International Law.

The committee completed its organization by the election of Dr. James Brown Scott as secretary.

Boston University
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The council is a branch in the United States of the Inter-American Institute of Intellectual Co-operation, created by the sixth of the Pan American Conference meetings in 1928 at Havana.

An Inter-American Congress of Rectors, Deans, and Educators in General met in the city of Havana in February of the present year, to provide the institute thus created with its constitution and by-laws and a program of its future activities, in which all the American republics, with the exception of Honduras, were officially represented.

The permanent seat of the institute is the city of Havana; the governing board is an Inter-American Central Council; and each of the American republics is to create a national council of intellectual co-operation. The American council, consisting of some fifty-five members, has already been named. The executive committee has been selected from its members to perform the usual functions of an executive committee.

As far as is known, this branch of the institute representing the United States is the first to be created, and the purpose of today's meeting of the executive committee was to take the necessary steps for its organization in the city of Washington, with a competent personnel in order that the council may, at the earliest possible moment, prepare plans and suggestions of work to be undertaken under the Inter-American Central Council of Intellectual Co-operation, which is to be located permanently in Havana, and to be executed in co-operation with the various national councils of intellectual co-operation to be established in each of the American republics.

For many years there has been an exchange of students and professors between the United States and various countries of South and Central America as well as along other scientific and cultural lines. The need has been felt increasingly, however, for a permanent center and a continuous direction of this movement, so that the Americas should, in the future, even more than in the past, unite their efforts and co-operate in the constantly expanding intellectual and cultural domain of the western hemisphere.

The American Council of Intellectual Co-operation is to be the agency of the United States in this great endeavor with its executive committee located in Washington.

LENGTH OF ELEMENTARY EDUCATION IN ENGLAND

The reorganization of primary education in England has of late come up for a great deal of discussion both in and out of Parliament. Last summer Sir Charles Trevelyan, president of the Board of Education, introduced a bill which, among other things, provided for the raising of the school-leaving age to fifteen years. The bill met with a great deal of opposition and was withdrawn. A new bill which requires compulsory school attendance until the age of fifteen has

recently been introduced in Parliament. Whether the bill passes or not, England is confronted with the problems of determining the length of primary education and of determining the character of the education which will be given pupils between the ages of eleven and fourteen or fifteen. The problems confronting England are very similar to those confronting communities in this country which have not introduced the junior high school or which have not otherwise shortened the period of elementary education.

A correspondent of the London *Times Educational Supplement* has so clearly presented the issues involved in shortening the period of elementary education that his statement should prove of interest to American, as well as to English, readers.

It is to be hoped that the obvious revival of interest in part-time education for children of fourteen and over that is in the scheme which Mr. Fisher advocated so forcibly and which he incorporated in the Education Act of 1918 will not deflect attention from the much more important problem of what is the best form of education for the young adolescent.

Mr. Fisher's scheme, we should remember, was part-time education from fourteen to eighteen, or full-time education to sixteen; he reduced the former period only after serious opposition from certain employers of labor and as a temporary concession in order to give industry time to adapt itself to the new conditions. But there are now some who advocate part-time education from fourteen to sixteen and who refer to this as the "1918 program." It is only a part of that program, however, and to put it forward as a complete scheme is to confess that our policy in 1930 is much more modest than our hopes were in 1918. The danger of this revised policy will be that it may be offered as an alternative to the Hadow scheme of reorganization with its recommendation that the minimum school-leaving age should be raised to fifteen. Lord Eustace Percy's suggestion, made recently at Bristol, was that "we ought to expand the Hadow ideal of four-year courses of full-time schooling for all children from eleven to fifteen into the wider ideal of five-year courses for all children from eleven to sixteen, beginning for the first three years in full-time schools but completed in the last two years either in full-time schools or in part-time schools according to the pupil's needs," but in discussing his proposals concerning part-time education this statement of his has not always been borne in mind, and his address as a whole may not improbably act as a brake upon reorganization.

The important question at issue, of course, is not so much that of the age at which children should leave school as that of the best organization of schools while the children are there. The question whether the school-leaving age should be raised to fifteen is distinct from, and less important than, the scheme which

would curtail the long and unsatisfactory period of primary education which lingers on so disastrously under our present system. Not fourteen, but eleven, is the critical age. Not primary education continued to fourteen, but secondary education begun at eleven and continued for three or four years is the new goal. What is to be done after fourteen is another matter; what is to be done before fourteen is our immediate problem.

It may be in dispute whether we can afford to extend the school age to fifteen; it is certainly difficult to decide when would be the most convenient date for such a change. It is important to realize the new possibilities of the relationship between industry and education. But these are less important matters than the facts which the Hadow scheme was designed to meet, namely, that the later years of primary education are largely ineffective and that the primary school, as at present organized, is not the best place for the young adolescent. We should not forget the service which Lord Eustace Percy rendered, when minister of education, in driving home these facts to the public mind; they were familiar themes in his addresses, and they evoked general assent. He helped to prepare the ground for the Hadow report, and the scheme of reorganization which emerged has met with a surprisingly large measure of agreement in most quarters. Nothing that has since emerged has weakened the general case for a drastic reorganization of our elementary-school system.

A system of primary education to the age of fourteen, followed by two years of part-time education, would pass by all the plans for reorganization that have been so carefully prepared and so generally approved. Are these to be dropped? Is the ideal of secondary education for all to be abandoned? Are the primary schools still to attempt the impossible task of dealing with infants of seven and youths of fourteen in the same institution and still to continue the use of methods which became traditional when the schools catered only to young children? These questions go to the bedrock of our educational policy. The proposed ending of primary education at the age of eleven is fundamental in the Hadow scheme. Where it has been put into operation, the results show a gratifying success. It is easy to plan the age period seven to eleven as a unit. It is also easy to plan the period eleven to fourteen (or fifteen) as a unit though of a very different kind. But experience has shown us that the period seven to fourteen (or fifteen) is too long for primary education. It has meant that the subjects of instruction, the rate of learning, the methods of teaching, the form of discipline, and the response of the pupils have been ill-defined and confused in the teachers' minds and that there has been a serious loss of efficiency.

We learn too slowly and too imperfectly from the history of our elementary education. It is not sufficiently remembered that throughout the nineteenth century children left school at an incredibly early age and that the schools were dealing mainly with children below the age of twelve. For a long period the majority left school considerably before that age. The few who remained beyond it were almost ignored. They were usually grouped in a miscellaneous

class at the top of the school; they repeated work done in previous years; their presence had practically no influence on the life of the school. They were given no outlet for their growing powers, no responsibilities to satisfy their emerging instincts of leadership, no scope for the new forces which they felt within them. They left school when they could, glad to escape from a routine which they had outgrown and which failed to satisfy their hopes and their interests.

Nor does this account refer to a remote past. It was only in 1918 that the universal age for attendance at school was raised to fourteen and that all exemptions below that age were abolished. But the primary school had then forged its traditions and its methods, and it has shown little facility in adapting itself to older pupils. On the whole, it was embarrassed by the large increase in the number of older children for whom it had no adequate program of work and no suitable technique of teaching. . . . .

We have raised the age to fourteen, but there is abundant evidence that the evil described more than forty years ago is not checked. We know that the mere raising of the school-leaving age is not enough. It is obvious that we have not saved these boys from disaster. We have turned them out into a world without adequate equipment for the greatest danger they could be called upon to face. Nor will half-time education at fourteen meet the case; the evil is done before that age and must be attacked at its source.

There must be a new concept of education, designed primarily to equip the young adolescent for the work and the life that await him. We must awaken curiosity in things that will seem important to him when he leaves school; we must equip him with a hobby that will absorb some of his spare time; we must strengthen his purpose so that he may be better able to withstand the temptation to drift; and we must nourish his self-respect. If our education is revealed as inefficient to meet the special dangers of unemployment, we ought to suspect that in other areas its failure may only be hidden. We must not blame our industrial troubles. We must accept the bitter fact that unemployment will not be speedily cured and that for some years to come there will be serious fluctuations in different industries. Education must prepare youth to face these difficulties, and the only positive program in sight which promises to do this is the Hadow scheme. We shall deceive ourselves if we think that half-time education after fourteen is an alternative.

When the schools are reorganized and education in the period after the age of eleven is refashioned, then the problem of what we are to do at fourteen or fifteen will be important. It may be that half-time education will be necessary for some industries and not for others. It may be that we shall require an extension of day-time technical courses on an extensive scale. It may be that vocational instruction will become extremely specialized and intensive. But first we must secure that every child has a three or four years' course of education in a school designed to satisfy the human and social needs which determine his attitude to life.

THE REPORT OF THE ADVISORY COMMITTEE ON EDUCATION BY RADIO

In June, 1929, Ray Lyman Wilbur, secretary of the interior, appointed the Advisory Committee on Education by Radio, under the chairmanship of William John Cooper, United States commissioner of education. The committee has recently published a report which includes a great deal of factual information with respect to education by radio in the United States and in other countries. The following statement is made regarding the extent to which educational material is broadcast.

The Fact-finding Committee found that:

Seventy-seven (12.3 per cent) of the 627 licensed broadcasting stations are owned and operated by educational institutions. Fifty-one of them report a weekly average of eight hours of broadcasting, two and one-half hours of which is called strictly educational.

Two hundred and eighty commercial stations report a weekly average of fifty-seven hours broadcasting, of which seven and one-half hours (13 per cent) are called educational. The National Broadcasting Company reports that the Damrosch Music Appreciation Hour course in music, now in its second year, is reaching 150,000 schools. The Columbia Broadcasting System, in co-operation with the Grigsby-Grunow Company began on February 4, 1930, an educational program in history, literature, music, and art prepared under a corps of experts headed by Dr. William Chandler Bagley of Columbia University. Until the middle of May two half-hour programs will be broadcast weekly.

Eight state departments of public instruction report the use of the radio for educational purposes. The state of Ohio maintains an organized program of school work for one hour every school day, supported by the state legislature, which has appropriated $20,000 a year for a two-year period. The superintendent of public instruction for the state of South Dakota reports that the educational forces of the state are organized and ready to institute a state program in South Dakota.

Six hundred and fifty-four (32.6 per cent) of the 2,001 school superintendents who answered our inquiries reported radio receiving-equipment installed in 1,690 school buildings. We illustrate by the following cases: 57 of the 253 Massachusetts high schools had receiving sets (1927 survey); North Carolina reaches most of its 142 high-school vocational departments by radio; South Dakota reports 22 rural schools; and Iowa, 46 rural schools equipped. The city of Nashville reports all schools equipped with receivers, and Cincinnati has a school-board order requiring all new schools to be "completely wired for radio."

The committee finds that very little, almost nothing, has been done by way of scientific evaluation of the results of education by

radio. It points out lines of investigation which ought to be undertaken in order to arrive at an intelligent understanding of the value of education by radio and of the methods and policies which should be pursued. Attention is called to the necessity of reconciling the interests of educators and commercial broadcasters. The committee made the following recommendation:

In view of the facts found and necessarily summarized in brief space above, the committee respectfully recommends:

1. That there be established in the Office of Education, Department of the Interior, a section devoted to education by radio and charged with such responsibilities as the following: (*a*) to receive from the Advisory Committee on Education by Radio its files and collected documents, to keep this material up to date and available for reference by the many students of the subject; (*b*) to organize some of the material into bulletins to be issued as demand warrants; (*c*) to outline techniques for research and carry on investigations into the best methods of broadcasting, and compare the results of lessons sent to schools by radio with the results obtained by other means, (*d*) to keep the educational interests of the country fully posted on, and alive to, the importance of this new instrument as an educational tool; (*e*) to attempt to prevent conflicts and duplication of effort between various broadcasting interests; (*f*) to furnish advice on the educational soundness of programs suggested and to supply typical programs upon the request of any station whether educational or commercial.

2. That the funds necessary for financing such a section in the Office of Education be provided in the regular budget for the Department of the Interior.

3. That there be set up in connection with this unit an advisory committee representing educational institutions, commercial broadcasters, and the general public. This committee should consist of nine to fifteen persons whose residence is such that they can meet from time to time for actual consideration of problems arising in the Office of Education. This committee may well administer any funds remaining in our budget to promote research into the techniques of radio education.

4. That an effort be made to secure from interested persons or foundations an amount of money sufficient to bring to the microphone, for a period of two to three years, a high-grade program in certain formal school subjects and to check carefully the results obtained. The committee believes that as much as $200,000 a year for a period of three years may be wisely expended in this manner under direction of a non-partisan committee of educators and laymen.

5. That the secretary bring to the attention of the Federal Radio Commission the importance of the educational interests in broadcasting, and that he keep the president of the United States informed of the desirability of having in this commission spokesmen for programs which will tend to improve the general well-being of the American people.

ILLNESS AS LEGAL CAUSE FOR DISMISSAL OF TEACHERS

In a recent case the Supreme Court of Minnesota ruled that a board of education may cancel the contract of a teacher who is ill for some weeks at the opening of the school term. The teacher in question had a contract to teach for a term of nine months commencing the first Monday in September. In July she became ill. On August 13 she notified the school board that it would be necessary for her to undergo an operation for appendicitis but requested that the board employ a substitute teacher until she should be able to begin work. She was not able to report for work until five weeks and two days of the school term had expired. Before the school opened, the board canceled the teacher's contract and employed a new teacher. The court held that the inability of the teacher to perform her duties for the whole term of the contract relieved the board from all liability. The following quotation is taken from the opinion of the court:

> The question presented by the appeal is whether, because of plaintiff's illness and inability to commence her work at the opening of the school year and for some five weeks and two days thereafter, the defendant was released from liability on the contract, or, in other words, whether there was such failure to perform on the part of the plaintiff as to release the defendant.
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> It is conceded that the contract is one for personal service by the plaintiff and that defendant could not be required or compelled to accept the services of a substitute or other person for and in place of the plaintiff. *School Directors* v. *Hudson*, 88 Ill. 563. We think it must be conceded that the contract was an entire contract for nine months and not a contract to serve from month to month.
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> In that situation a failure to perform a substantial part of the contract, without fault on the part of the defendant, operated as a discharge thereof. It is stated as a general rule that "contracts to perform personal acts are considered as made on the implied condition that the party shall be alive and shall be capable of performing the contract, so that death or disability will operate as a discharge." 13 C.J. p. 644, §719, and cases cited in note 3; *Powell* v. *Newell*, 59 Minn. 406, 61 N.W. 335.
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> The plaintiff was not incapacitated for the full term of the contract. A contract may be broken wholly or in part. The breach may not be of such importance as to operate as a discharge. In other words, the failure to perform must go to the substance of the contract, be nonperformance of a material part thereof. The superintendent of this school testified that the selection of teachers for the grades was an important matter; that at any time of the year it is hard on the pupils to substitute teachers; that it is impossible to avoid substitution

when a teacher becomes sick during the school year after having entered upon her services; that, at the beginning of the year, if substitution is asked for an indefinite period, the only thing that is right for the children is to get a permanent teacher; that, if substitution for one week or two weeks only is required, and for that definite time, the usual rule is to permit same; that it is not practical from an educational standpoint to have a substitute for one or two months, or for an indefinite time at the beginning of the school year.

The school board, as the time to commence the school year approached, was faced with the situation that one of its teachers was ill and would not be able to serve at the opening of the school or for an indefinite time thereafter. Whether a substitute was available for an indefinite time is not shown. Efficient teachers, as a general rule, seek and obtain employment for an entire school year and not as substitutes for an uncertain period. Its superintendent held that it was not practical and not for the best interest of the school to employ a substitute teacher at the beginning of the school year for an indefinite time. In that situation, the inability of the plaintiff to serve for five weeks was such nonperformance of a substantial and material part of an entire contract as to release the defendant from further liability thereunder.

This is not a case where a plaintiff seeks recovery for part performance of an entire contract, but one to recover wages where no services have been performed. If a proper substitute teacher was available and defendant could have employed such teacher, without detriment to its school, it would have been more considerate toward plaintiff to do so; but it is not shown that defendant has violated any rule of law or made itself liable to damages by failing so to do. One party or the other must bear a substantial loss. It may seem a hardship that plaintiff must bear the loss of the benefit of a large part of her contract. On the other hand, to require the defendant, or its taxpayers, to pay out some $800 for which no services have been performed and no benefit received is equally a hardship. . . . .

In the case of *School District No. 1* v. *Parker*, 82 Colo. 385, 260 Pac. 521, the Colorado court went on the theory that, before the school district could be released from liability under its contract to a teacher who failed to report for work until some three weeks after the school opened, the school board must have formally discharged the teacher for that cause, after hearing had on notice. In that case the contract with the teacher provided that she could be discharged only for good cause shown, which included a hearing. The statute of that state provided that no teacher should be dismissed without good cause shown. The fact that in our present case nothing is said in the contract as to discharge of the teacher, and that our statute provides that the school board may discharge a teacher for cause, without any express provision for a hearing, is probably not of importance here. The question of discharge does not enter our case. As already noted, it is the question whether there was such nonperformance of an entire contract as to release the defendant from liability.

The Colorado case, if followed in its entirety, would result in placing an undue burden upon school boards. The teacher there was absent in Europe. No

hearing could be had or notice given until she returned and offered her services to the board. When she did so return, she was then entitled to teach, not having been discharged before that. Possibly the board could, at some future time, after notice and hearing, discharge her, even if, at the time of the hearing, she was in all respects complying with her contract, but she would at least be entitled then to compensation up to the time of her dismissal.[1]

Upon the evidence most favorable to plaintiff, the defendant was entitled to a directed verdict.

Justice Holt wrote the following dissenting opinion, which was concurred in by Justice Dibell.

In so far as a judgment is directed, I dissent. The contract was for a year. The school board knew that the plaintiff was forced to undergo an operation. But the operation was one from which as a rule there is a speedy recovery. Knowing that the operation had taken place, and before the time arrived for the opening of the school, the school board, without notice, canceled plaintiff's contract, not formally, but by entering into a contract with another to do the work plaintiff was engaged to perform. The statute provides that the board may discharge for cause a teacher with whom it has contracted. I am of the opinion that it was a jury question whether cause existed for this cancellation or discharge.

THE NATIONAL EDUCATIONAL SERVICE, INC., OF DENVER

The January, 1930, number of the *Elementary School Journal* carried a statement concerning the National Educational Service, Inc., of Denver. The statement was prepared by the Commission on the Equity of Teacher Placement of the National Society of College Teachers of Education. The members of the commission were J. B. Edmonson, University of Michigan; J. W. Withers, New York University; and Frank N. Freeman, University of Chicago. For a number of years the commission had been keeping in touch with the methods of business of the employment agency. In 1927 the commission prepared a report on the agency and was on the point of publishing it when informed by U. J. Barbell, president of the agency, that his company had gone out of business. In 1929, however, the commission discovered that the agency was again conducting a business of the same general type as that carried on before 1927. The commission resumed its investigation and published its findings in the statement already referred to. No specific evidence of fraud was presented in the report. The report seems not to have been

[1] *Hong* v. *Independent School District No. 245 of Polk County*, 232 N.W. 329.

without influence, however. At any rate, the agency has been denied the use of the mails as is indicated in the following statement quoted from the *Denver Post.*

A fraud order was issued Thursday by the United States post-office department against the National Educational Service, Inc., 941 East Seventeenth Avenue, through which U. J. Barbell and associates are alleged to have realized $185,000 since 1923.

Under the terms of the order the institution practically will be put out of business, according to local postal officials, as it is denied use of the United States mails, through which it carried on a major portion of its business. . . . .

The postal inspectors' department here has been checking on Barbell's activities for five or six years but said nothing could be obtained to warrant a fraud order previously, though the business seemed "shady." Contracts were so carefully worded that the teacher enrolled had no redress if he or she failed to receive the service expected, attachés of the department declared.

So long as the agency is operated under its present name, the fraud order virtually blocks off all business, as mail addressed to the organization will not be delivered.

Postal authorities intend to keep a close watch on Barbell and said that, if another concern is opened under the same plan, it will be dealt with in an identical manner.

Evidence in the case will be presented to the United States attorney general, who will decide if it is sufficient to bring criminal action against Barbell.

Following a hearing in Washington, D.C., at which the employment-agency head appeared with his attorney, Charles A. Prentice, of Denver, Solicitor Horace J. Donnelly, of the post-office department, found that the National Educational Service is "a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations, and promises."

From 150 to 200 letters have been delivered daily to the offices of the organization, according to the report to the post-office department.

Applicants for teachers' positions were required to make a payment of $10, "good for an indefinite period," where the usual charge by teachers' agencies is $2 or less and 5 per cent of the first year's salary to those placed.

Refunds are said to have been promised to dissatisfied applicants, but upon investigation it was found that few such refunds were made. The refund, it is understood, was to be given after operating expenses of the agency were paid.

The catch, according to investigators, was that by the time the salaries of various officers were deducted there was no money left for the applicant.

A NEW LABORATORY FOR CHILD RESEARCH

The board of governors of Mooseheart, Illinois, have made the following announcement.

The board of governors of Mooseheart, the "City of Childhood," established by the Loyal Order of Moose for orphaned children of its membership, announces through its superintendent, Ernest N. Roselle, the establishment of a department of child research. The plans for the organization of this department have been in progress for some time, and a tentative program has been outlined in co-operation with a group of national authorities in all fields of child health and development. The department has the enthusiastic support of Hon. James J. Davis, United States secretary of labor, the founder of Mooseheart, and the chairman of its board of governors. Martin L. Reymert, formerly head of the department of psychology at Wittenberg College, has been appointed director of child research and is now establishing a laboratory at Mooseheart devoted to all phases of child research. It is expected that the new laboratory, which will be known as the "Mooseheart Laboratory for Child Research," will become an important national center of research on the growth and training of normal children and that its research program will be developed in co-operation with other important child research centers throughout the country.

THE NEWSPAPER AND THE YOUTHFUL READER

The following statement was published in the *United States Daily*.

Cosmopolitan daily newspapers could render a great service to boys and girls by introducing juvenile news and general news simplified to their intellectual level, the commissioner of education, William John Cooper, stated orally at the Department of the Interior.

Newspapers today appeal almost entirely to adult intelligence and tastes, the Commissioner said. More attention to the intelligence and tastes of young readers of high-school age, and downward, in the composition of a paper, might be of great educational value. A special page set aside for that purpose might be an experiment worth trying, he declared.

Commenting further upon the possibilities of juvenile news, the Commissioner furnished the following additional information.

Comic sections and sport pages have a general appeal among young people. Often papers carry pages which appeal only to very young children, where prizes are awarded for drawings, letters, stories, and various items of interest. However, the newspaper does not afford much of interest to those falling within and below the high-school age.

The newspaper is written largely for the adult. News of children occupies but a small space. News that might be of interest to children is written with a maturity they cannot understand.

The powerful influence of the press upon individual and public opinion is well known. Spectacular stories written with skill and dramatic color grip the attention of some of the young people just attaining the age to appreciate the newspaper. Many turn from good literature at this period to a cheaper kind of fiction not always in harmony with their school training.

It would seem that there is an opportunity for the cosmopolitan daily to

attempt to reach through some carefully planned system the hundreds of thousands of boys and girls who have vital interests well within the category of news. A special page, perhaps experimented with in a Sunday edition, might be introduced with this object as a part of its general policy.

Such a page might contain both local and national news. To inspire young people, well-known citizens of the community might permit brief sketches of their early lives in language simple and straightforward which would attract the interest of youthful readers. Many persons consent to such sketches in the formal magazines and in the newspapers already, but only the adult is prepared to read and enjoy them. The young readers could follow the struggles and choices of those who have become successful and at an early age themselves make choices to their own advantage and to that of the community.

News of a formal kind, political, social, religious, and scientific, might be simplified in this special section or page and made attractive to the young reader. This would require considerable re-writing. Any number of features could be prepared to instruct young people, and it is quite possible that there would be a large adult following. Stories on election, features on the government, and other facts commonplace to the average adult might be presented with considerable success.

The scheme has its difficulties. However, in spite of them, it would be interesting to see the experiment tried.

NEW VENTURES IN ADULT EDUCATION

The University of Southern California has made the following announcement.

The Alumni Association of the University of Southern California announces the inauguration of a program of continued intellectual relationship of its members with their Alma Mater by the installation of a series of mimeographed lectures with suggested additional reference book lists. It will take the form of a special type of correspondence education, reaching Southern California alumni with the association magazine, the *Southern California Alumni Review.*

"During the past few years universities, through their alumni associations, have been seeking a progressive, practical method of continuing the intellectual relationship between university and alumni," states Frank Hadlock, executive secretary of the Alumni Association of the University of Southern California, with headquarters at 36th and University Avenue, University Park, Los Angeles. "The tested methods have been short courses (as conducted at Lafayette, Vassar, and the University of Michigan) and reading lists (at Amherst, Smith, and Dartmouth). We feel that none of these or other methods is completely successful by virtue of the fact that the short courses reach an infinitesimal percentage of those who desire intellectual contact with the university, and the reading lists alone have been comparable in some instances to publishers' catalogues. Radio presents a one-time auditory appeal which is interesting but not sufficiently tangible for alumni-education purposes.

"We propose the continuation of intellectual relationship with our alumni by means of a series of mimeographed 'lectures' dealing with subjects of current cultural and economic interest and prepared by professors of the university faculty, with suggested additional reference books on the subjects selected."

The eight fields following are included in the initial continuation-education project of the alumni association to be launched with the November, 1930, issue of the *Southern California Alumni Review:* modern poetry, modern novel, and modern drama; American government and politics; economics, business problems, and merchandising; travel, geography, and natural history; radio engineering and developments, sound engineering, aviation and aërodynamics, and television; child psychology; art, music, and opera reading; science, new discoveries in medicine, and chemistry.

The program, which is under the direction of Merritt Adamson, president of the Alumni Association of the University of Southern California, was worked out under the supervision of Frank C. Touton, vice-president of Southern California, and is approved by R. B. von KleinSmid, the university president.

"The lectures could not possibly cover the field thoroughly in any subject, the purpose being to furnish detailed information on current developments in special fields, bringing the alumnus up to 1930 and succeeding years in the particular subject in which he or she is vitally interested," comments Mr. Adamson. "Each alumni member will have the opportunity of selecting two subjects in which he is most interested, and the series of lectures will be mailed out periodically as a supplement to the alumni magazine, thereby consolidating mailing costs."

It is planned that a faculty committee of three will have charge of each subject, each professor preparing a "lecture" of six typewritten pages in his particular field.

The University of North Carolina has also recently announced a new service for its alumni. At a nominal cost alumni may rent a number of new books selected and recommended by the university faculty. Each book will be accompanied by a critical commentary written by a member of the university faculty who is an authority on the subject of the book. This commentary is not to be an ordinary book review but "is designed to evaluate the book, to show its relation to other books on the subject, or to furnish interesting information about the author and his work—in short, to chart the position of the book in the sea of literature."

LIBRARIES IN THE RURAL SCHOOLS

The following statement was published in the *United States Daily.*

The lack of county libraries hampers the educational progress of rural America, the assistant specialist in school libraries, Edith A. Lathrop, stated orally at the United States Office of Education.

With 50 per cent of the population scattered about in approximately 3,000 counties, it may seem surprising that only 262 counties have established county libraries, and of these 46 are in the state of California, the specialist declared.

Further information supplied on rural libraries was as follows:

From a recent study of county library service to rural schools, conducted by the Office of Education, it was found that approximately 61 per cent of the total number of county-library branches and stations are located in public-school buildings. About 37 per cent of these so housed furnish books for the general public as well as for the schools.

Approximately 85 per cent of the rural schools in the counties having county libraries are receiving service from the libraries. With the county library as the center, books are distributed to various branch libraries; hence the facilities are made available to all parts of the county.

County libraries are handicapped by a lack of funds for their maintenance and expansion.

There is wide variation in fiscal appropriations for county libraries. In 1928 the minimum annual county appropriation for county library service was $200; the median, $9,062; and the maximum, $289,049; the appropriation was less than $2,499 in 21.9 per cent of the cases reporting. Annual appropriations of $10,000 are rare. Such a small appropriation as $200 a year provides for the most meager service, but it frequently marks the beginning of county-library development for a county.

The transference of school-district funds to county libraries in exchange for service is practiced more generally by county libraries in California than by those in other states. During the school year 1927–28 approximately 91 per cent of the school districts in California transferred their school library funds to county libraries.

The median annual expenditure of county libraries for books increased from $3,750 in 1924 to $4,500 in 1928. In 1928 the median expenditure for books (other than text or supplementary books) sent to rural schools was 37 per cent of the total expenditure for books.

Much effort is displayed by county librarians in instructing children in the care of books. From one to twenty-one ways are reported. The three ways used most commonly are: talks to children on the subject, talks to teachers by librarians at county institutes and other gatherings of teachers, and placing bookmarks with timely suggestions in books given children.

Parcel post and automobile trucks are the two most common methods used by county libraries in transporting books to schools. Members of county library staffs frequently furnish their own conveyances for making trips throughout the counties when such conveyances are not provided by the counties. The number of visits made by members of county library staffs to schools varies from one a week to one a year.

The data indicate that the number of books circulated by county libraries among rural schools is increasing. In the school year 1923–24 the median circulation was 10,681 volumes; in the school year 1927–28 it was 16,944.

RADIO IN THE SCHOOLS

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Under the name of the "American School of the Air" a series of nation-wide broadcasts especially designed for the schools was inaugurated in February, 1930, and continued over a period of fifteen weeks. A half-hour program was provided each Tuesday and Thursday afternoon from two-thirty to three o'clock, eastern standard time. The enterprise was financed jointly by the Columbia Broadcasting System, Inc., and the Grigsby-Grunow Company, manufacturers of radio sets. It was approved by the secretary of the Department of the Interior and by the commissioner of education of the United States. The programs were under the supervision of Alice Keith. An advisory staff was appointed, with the writer as chairman. The other members of the staff were recognized authorities in the several fields represented by the programs, chiefly history, literature, music, art, and nature-study. The principal duty of the members of the advisory staff was to pass judgment on the accuracy and authenticity of the material in the programs that fell within their respective fields. The announcements and narratives were carefully scrutinized by a specialist in English who had had wide experience in teaching children.

It was recognized from the outset that radio broadcasts could become important supplements to classroom instruction only if they were organized in such a way as to stimulate learning activities among the pupils. Mere "listening-in" may be a profitable expenditure of time in connection with an occasional program; but the more significant and more enduring benefits can come, if contemporary educational theory teaches us the truth, only when the learner is inspired to some effort of his own. In order to assist the teachers to take advantage of the stimulus provided by the programs, a rather elaborate *Teachers' Guide and Manual* was prepared and sent

to all teachers who asked for it. This pamphlet contained a schedule of the broadcasts, bibliographies for each of the programs, and problems and projects suggestive of activities.

The Tuesday programs were devoted to dramatizations of important events in American history. These were prepared by Henry F. Carlton and William F. Manley, specialists in the field of radio dramatization, who were in a position to apply to educational broadcasting a technique that had already been found well adapted to the microphone. The Thursday programs were varied and comprised lessons in civics, art, literature, health, and nature-study as well as musical broadcasts and a special program for International Good-Will Day.

In order to determine whether broadcasts such as these are successful, the chief reliance, under present conditions, must be placed on the responses that are received through the mail. Both the number of letters received and their contents give reason to infer that the programs of the American School of the Air met in a fairly meritorious way the conditions that educational broadcasting must meet if it is to be a useful adjunct to school instruction. More than thirty-five thousand communications were received, most of which were letters from teachers, from individual pupils, and from groups of pupils. Many of the letters inclosed specimens of the written work, maps, designs, and other results of the pupil activities which the programs had suggested and stimulated. A surprisingly large number of letters, however, came neither from teachers nor from pupils but from adults long out of school—several from persons of eighty years of age or over—who found the programs interesting and informing and, as one of the older correspondents suggested, a welcome supplement to the broadcasts which have entertainment as their sole purpose. Especially gratifying were the letters in Braille from pupils and classes in schools for the blind, and perhaps most gratifying of all were the letters from the mothers of shut-in children who could have through the radio a little of school work and school life brought to their homes.

The responses from the teachers confirmed emphatically the general theory that, to be educationally significant, radio broadcasts must stimulate the pupils to related activities. It is indicative of the

contemporary interest in the creative work of school children that more than a thousand original poems were sent in as a result of a program in the course of which Edwin Markham read selections from his writings. The dramatizations of historic episodes stimulated several groups of pupils to dramatize other events. Further results reported by the teachers were an increased interest in the formation of clubs, in debating (as a result of a debate in one of the programs), in folk lore and folk music, and in geographic studies and activities.

As one would expect, educational broadcasts are especially welcomed by the teachers and pupils in isolated rural schools. For this reason, perhaps, the state superintendents and commissioners of education have been particularly interested in the development and continuance of these programs. After the close of the broadcasts in May the Columbia Broadcasting System, Inc., communicated with these state officials, asking whether, in their judgment, the venture should be continued for another year. All who replied—forty of the forty-eight—urged its continuance.

In view of this official indorsement, a new series of programs has been prepared for the year 1930–31. There will be five programs a week instead of two, and the programs will be differentiated for the grade groups—primary, intermediate, junior and senior high school.

The possibilities of educational broadcasting are so promising that it would be unfortunate, indeed, if the broadcasts provided by the American School of the Air were not made the basis of controlled experiments for determining how far these possibilities are being realized by the present programs and techniques. Schools in which parallel groups can be organized and equated by the methods well known to educational research can make, we believe, a most valuable contribution by undertaking such experimentation. Whether the present venture can be continued for a third year is not yet known. Daily broadcasts over a nation-wide network are very expensive. Whatever can be learned during the current year will be of service whenever the federal government or the National Education Association or some other non-commercial agency decides to finance a similar enterprise.

ARITHMETICAL ABILITIES AND DISABILITIES OF COLLEGE STUDENTS

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During the greater portion of the average American child's elementary-school training he receives a large amount of instruction and drill in arithmetic. In high school he suddenly drops arithmetic except as he maintains practice in courses in science or high-school mathematics and except as the ordinary transactions of everyday life involve arithmetic, for instance, making change. In college the individual may suddenly find that the amount of arithmetical knowledge required is not small, as in physics, chemistry, or certain commercial courses. Some little evidence exists to indicate that students doing poor work in these college courses are often deficient in arithmetic. Under such circumstances it seems of importance to determine what arithmetical abilities or disabilities the average college student has.

In order to secure specific data as to the nature of the arithmetical deficiencies of college students two groups of students were tested. A complete set of Monroe's Diagnostic Tests in Arithmetic was given to a group of 83 Freshmen. To another group of 140 Freshmen the tests in arithmetic computation and arithmetic reasoning of the Stanford Achievement Test were given.

RESULTS

The results obtained from the three tests are presented in tabular form. Table I shows the distribution of the scores made in the Monroe tests, the medians, and the percentage of students scoring below the eighth-grade norms in the various tests. Table II indicates the type of operation covered in each of the twenty-one Monroe tests, the percentage of students scoring below the eighth-grade and fourth-grade norms, and the percentage of students making a zero

TABLE I

DISTRIBUTION OF TEST SCORES OF EIGHTY-THREE COLLEGE STUDENTS ON THE TWENTY-ONE ITEMS IN MONROE'S DIAGNOSTIC TESTS IN ARITHMETIC, MEDIAN FOR EACH ITEM, STANDARD EIGHTH-GRADE MEDIAN, AND PERCENTAGE OF STUDENTS WHOSE SCORES WERE BELOW EIGHTH-GRADE MEDIAN

Number of Correct Responses	Tests of Operations with Integers											Tests of Operations with Fractions					Tests of Operations with Decimals				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
24	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	21	0	0	0
23	11	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	12	1	1	0
22	5	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	8	0	0	0
21	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0
20	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	28	1
19	5	2	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	3	0	17	0
18	1	3	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	7	1	6	1
17	6	2	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	6	0	8	0
16	2	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	6	0	4	0
15	3	1	0	1	0	0	0	0	5	0	0	11	0	3	0	5	1	3	2	7	1
14	6	10	1	0	0	0	0	0	6	1	0	4	0	0	1	5	1	2	1	2	1
13	5	9	1	0	5	0	1	0	12	1	0	3	1	5	2	1	1	0	0	3	0
12	2	11	4	1	1	0	1	0	8	0	0	5	0	4	2	2	0	0	1	1	0
11	1	6	3	1	0	2	1	1	9	1	0	4	1	7	1	3	1	2	1	1	3
10	0	8	5	10	1	0	9	3	6	5	0	4	4	4	4	4	1	1	0	2	3
9	0	7	5	8	5	1	7	6	3	6	1	8	6	9	4	5	3	0	2	0	4
8	0	4	6	8	6	4	9	8	8	12	0	4	7	5	8	13	1	0	6	1	0
7	0	4	9	11	15	5	10	9	4	12	2	9	16	5	8	7	2	1	5	1	6
6	0	3	15	11	15	10	10	17	1	10	3	7	7	6	13	5	3	1	7	1	3
5	0	1	13	9	12	8	17	10	1	11	5	4	9	3	8	7	3	0	6	0	14
4	0	0	8	8	9	25	8	11	0	8	18	4	5	10	5	2	7	0	11	0	11
3	0	0	1	8	7	12	6	10	0	7	18	2	13	1	5	3	13	0	5	0	11
2	0	1	7	3	3	12	2	8	0	7	23	5	6	2	9	0	12	0	15	0	14
1	0	0	2	2	3	3	2	0	0	2	5	4	2	4	7	6	13	1	10	0	5
0	0	4	3	2	1	1	0	0	0	0	8	5	6	15	6	15	17	1	8	0	5
Median	22.1	12.3	6.5	6.9	6.4	4.5	6.6	6.1	13.1	6.6	3.3	8.4	6.1	7.1	6.1	7.5	3.0	21.9	4.3	19.3	4.6
Standard eighth-grade median	12.7	8.9	5.2	4.0	4.0	4.5	4.3	4.4	8.2	5.4	2.3	5.4	3.7	5.1	3.3	6.1	2.5	11.0	3.5	11.0	2.4

score in each type of operation. Table III gives the distribution of total scores in the arithmetic-computation and arithmetic-reasoning

TABLE II

PERCENTAGE OF EIGHTY-THREE COLLEGE STUDENTS SCORING BELOW THE EIGHTH-GRADE NORMS, PERCENTAGE SCORING BELOW THE FOURTH-GRADE NORMS, AND PERCENTAGE MAKING SCORE OF ZERO ON TWENTY-ONE ITEMS IN MONROE'S DIAGNOSTIC TESTS IN ARITHMETIC

Test	Percentage below Eighth-Grade Norm	Percentage below Fourth-Grade Norm	Percentage of Zero Scores
Operations with integers:			
1. Addition (4+7+2)	4	0	0
2. Subtraction (37−5)	20	6	5*
3. Multiplication (6×6572)	25	14	4
4. Division (8)3840	18	5	2
5. Addition of five four-place numbers	17	8	1
6. Division (82)3854	64	5	1
7. Addition of column of thirteen numbers	22	5	0
8. Multiplication (36×4857)	35	0	0
9. Subtraction (739−367)	7	0	0
10. Multiplication (37×560)	42	11	0
11. Division (47)27589	43	0	10
Operations with common fractions:			
12. Addition $\left(\frac{1}{6}+\frac{1}{3}\right)$	29	0	6
13. Subtraction $\left(\frac{3}{4}-\frac{2}{5}\right)$	33	0	7
14. Multiplication $\left(\frac{2}{3}\times\frac{3}{4}\right)$	39	0	18
15. Addition $\left(\frac{1}{6}+\frac{3}{5}\right)$	33	0	7
16. Division $\left(\frac{2}{5}\div\frac{1}{3}\right)$	40	0	18
Operations with decimals:†			
17. Division (.03)16.2	51	0	20
18. Multiplication (.7×657.2)	6	0	1
19. Division (.04)148	46	0	10
20. Multiplication (.62×487.5)	6	0	0
21. Division (.47)2758.9	29	0	6

* The zero scores in Test 2 appear to have been caused by failure to see that the figures must be subtracted and not added as in Test 1. There seem to be no other places where irrelevant circumstances entered into the scores.

† The tests of operations with decimals simply test the student's ability to place the decimal point.

tests of the Stanford Achievement Test, and Table IV gives grade norms in the Stanford test and the percentages of students scoring below the grade norms.

TABLE III

DISTRIBUTION OF TOTAL SCORES OF 140 COLLEGE STUDENTS IN TESTS OF ARITHMETIC COMPUTATION AND ARITHMETIC REASONING OF THE STANFORD ACHIEVEMENT TEST

SCORE*	NUMBER OF PUPILS	PERCENTAGE OF PUPILS
	Arithmetic Computation	
188†	0	0
184	1	1
180	5	3
176	1	1
172	5	3
168	7	5
164	5	4
160	8	6
156	8	6
152	8	6
148	9	6
144	12	9
140	11	8
136	11	8
132	5	3
128	3	2
124	9	6
120	11	8
116	8	6
112	3	2
108	3	2
104	4	3
100	1	1
96	2	1
92	0	0
88	0	0
84	0	0
Total	140	100
Median	143.6	.....
	Arithmetic Reasoning	
160†	0	0
156	2	1
152	0	0
148	2	1
144	3	2
140	4	3
136	1	1
132	6	4
128	6	4

* The score is a weighted score, being four times the number of the correct items.

† Highest possible weighted score.

TABLE III—*Continued*

Score	Number of Pupils	Percentage of Pupils
	Arithmetic Reasoning—*Continued*	
124	10	7
120	9	6
116	10	7
112	11	8
108	15	11
104	13	9
100	11	8
96	10	7
92	6	4
88	5	4
84	4	3
80	3	2
76	1	1
72	3	2
68	3	2
64	1	1
20	1	1
Total	140	99
Median	110.4	.....

TABLE IV

Grade Norms in Tests of Arithmetic Computation and Arithmetic Reasoning of the Stanford Achievement Test and Percentage of Students Who Fell below Grade Norms

Grade	Norm	Percentage of Students below Norm
	Arithmetic Computation	
VI	108	5
VII	112	7
VIII	128	29
IX	132	31
	Arithmetic Reasoning	
VI	64	1
VII	80	7
VIII	92	15
IX	96	19

In the Monroe tests an average of 29 per cent of the scores fell below the eighth-grade norms in all the tests. For the eleven tests involving operations with integers, an average of 27 per cent dropped below this level. In the five tests dealing with operations with common fractions, an average of 34 per cent of the scores were below the eighth-grade levels, while in the five tests involving operations in multiplication and division of decimals, the average percentage of scores falling below the eighth-grade norms was 27. The percentage of zero scores for each of the three types of tests seems especially noteworthy, the average percentages being: on six tests involving operations with integers, 2; on five tests involving operations with common fractions, 11; on four tests involving operations with decimals, 9.

The situation disclosed by the results of the Stanford arithmetic-computation and arithmetic-reasoning tests is also illuminating. Table IV shows that in the arithmetic-computation test an average of 29 per cent of the students scored below the eighth-grade norm. This figure agrees exactly with the percentage of students falling below the eighth-grade norms in the Monroe tests. While the Monroe tests are designed mainly for diagnostic purposes, the Stanford test and the Monroe tests cover practically the same field; they begin with the four fundamental operations and proceed to the more complex operations with common and decimal fractions. In view of this fact, the relation between the results of the two tests would seem to be of some significance. The details of this relation will be indicated more specifically in connection with a comparison of the results of the analyses of errors in the two tests, which is given at another point in this article.

Difficulties in computation which seem to be important are suggested by the facts that in the Stanford arithmetic-computation test, 7 per cent of the 140 college Freshmen dropped below the seventh-grade norm and 5 per cent fell below the sixth-grade achievement level. While it is not to be inferred that college students in general are deficient in arithmetical ability, it seems that considerable difficulty exists in connection with certain skills rather frequently used in arithmetical computation. In the Stanford arithmetic-reasoning test 15 per cent of the 140 students scored below the eighth-grade

norm, and 7 per cent dropped below the seventh-grade level. While the reasoning test necessarily involves a certain amount of computation, it is designed primarily to test reasoning ability. Doubtless, lack of comprehension in reading is partly responsible for the deficiencies revealed in this test.

ANALYSIS OF ERRORS

The heart of the problem of the arithmetical abilities and disabilities of college students is found in the analysis of the errors in the two tests. A careful study of the errors made in both the Monroe and the Stanford tests, which were taken by different groups of college Freshmen, show that the chief types of errors were strikingly similar in both tests. In the Stanford test it was found that, of ten examples missed by 25 per cent or more of the group, seven were examples involving fractions. Four of the seven examples called for simple addition or subtraction of fractions, two for division, and one for multiplication. In both tests the chief difficulties in the addition and the subtraction of fractions proved to be the finding of the common denominator and the reduction to lowest terms. In the division of fractions the chief errors were found to be failure to invert the divisor and incorrect reduction of the quotient to lowest terms. The example in multiplication of fractions was missed by an average of 14 per cent of the students chiefly because of errors in simple multiplication of numerators or denominators and because of errors in reducing the product to lowest terms. In the main, the chief sources of error in the operations involving fractions appear to agree closely in both the Monroe and Stanford tests.

A few specific examples of deficiencies disclosed by an analysis of the errors made in the seven examples referred to will illustrate the nature of the difficulties encountered. In the division of $\frac{2}{3}\frac{2}{4}$ by $\frac{1}{1}\frac{1}{6}$ (answer $1\frac{1}{3}$) seventeen different incorrect answers were given. Seventeen students wrote $\frac{4}{3}$ as the answer. This quotient, while not necessarily incorrect, indicates possible ignorance of the common rule that fractional answers should be reduced to their lowest terms and that improper fractions should be reduced to mixed expressions. In another example involving division of fractions ($\frac{1}{1}\frac{1}{6} \div \frac{1}{1}\frac{1}{2}$) the answer $\frac{1}{1}\frac{2}{9}\frac{1}{3}$ was given by five students, a result obtained by multiplying the

numerators and the denominators without first inverting the divisor. In the division of $5\frac{5}{6}$ by $3\frac{1}{2}$ (answer $1\frac{2}{3}$) twenty-two different wrong answers were given. Apparently, the errors were caused by failure to reduce a fraction to its lowest terms (sixteen cases), by neglecting to invert the divisor (eight cases), and by mistakes in the simple processes (sixteen cases).

In the example $\frac{1}{18}+\frac{2}{3}+\frac{5}{9}+\frac{1}{6}+\frac{1}{2}$ (answer $2\frac{5}{9}$), the example which showed the largest percentage of error (55), twenty-four different wrong answers were given. The most fruitful source of error was not failure to find the lowest common denominator but failure to reduce the various fractions to similar fractions before adding the numerators. Failure to reduce the sum to lowest terms and the simple addition of the numerators accounted for a considerable portion of the errors.

As a further illustration of students' disabilities in the fundamentals of arithmetic the answers to an example in decimals may be cited. In the subtraction of $9\frac{2}{5}$ from 53.16 (answer 43.76) twenty-seven different incorrect answers were given. The example was missed by 28 per cent of the group tested on this example. The most common error was found to be in the conversion of $9\frac{2}{5}$ to a decimal. The answers given by the students tested in this study indicate that the correct location of the decimal point is beyond the ability of a considerable number of college students.

It may seem somewhat startling to find that a considerable number of college students are apparently unable to deal accurately with the simple operations of addition, subtraction, multiplication, and division. However, the difficulty in each case appears to center around specific operations—for example, carrying numbers and making computations in certain simple operations—as the following examples selected from the tests will indicate. For instance, in multiplying 452 by 4, six students gave the product as 1,008. This incorrect result was apparently caused by the substitution of addition for multiplication in the last step, since 4 plus 4 equals 8 and 8 plus the 2 carried equals 10. In the subtraction of 536 from 971 (answer 435) the chief error of the ten students who missed this example was incorrect borrowing. For example, seven of the ten gave the remainder as 335, a result which indicated that they had failed to

observe that they had not borrowed from the 9. Illustrations of inaccuracies of these types could be multiplied many times.

In order to throw into somewhat clearer relief the general nature of the deficiencies disclosed by the analysis of the errors in the Stanford arithmetic-computation test, it seemed profitable to attempt

TABLE V

PERCENTAGE DISTRIBUTION OF 237 OF A POSSIBLE 3,180 ERRORS IN FUNDAMENTAL OPERATIONS WITH INTEGERS IN THE ARITHMETIC-COMPUTATION TEST OF THE STANFORD ACHIEVEMENT TEST

Operation	Percentage of Error
Multiplication (mainly errors in carrying and simple multiplication)	43
Addition (mainly errors in carrying and faulty combinations)	23
Subtraction (mainly errors in borrowing and substituting addition)	19
Division (mainly errors in subtraction and multiplication)	15

TABLE VI

PERCENTAGE DISTRIBUTION OF 383 OF A POSSIBLE 1,540 ERRORS IN OPERATIONS WITH COMMON FRACTIONS IN THE ARITHMETIC-COMPUTATION TEST OF THE STANFORD ACHIEVEMENT TEST

Error	Percentage of Error
Error in addition of fraction (mainly in finding least common denominator)	19
Error in division of fraction (mainly failure to invert divisor)	19
Error in subtraction of fraction (mainly in finding least common denominator)	17
Failure to reduce improper fraction to lowest terms	16
Error in multiplication of fraction (mainly in simple multiplication and reduction)	15
Failure to reduce proper fraction to lowest terms	13
Incorrect changing of mixed number to improper fraction	1

some sort of classification on the basis of the outstanding type of error in each example in the test. The writer is aware that such an analysis may be somewhat lacking in specificity since several types of errors are possible—and in some instances did occur—in a single operation. In the classifications given in Tables V–IX each of the

forty-seven operations in the test has been placed in one class only, according to the most significant error found in each operation. The

TABLE VII

PERCENTAGE DISTRIBUTION OF 17 OF A POSSIBLE 420 ERRORS IN OPERATIONS WITH DECIMALS IN THE ARITHMETIC-COMPUTATION TEST OF THE STANFORD ACHIEVEMENT TEST

Error	Percentage of Error
Disregard of decimal point	59
Incorrect placing of decimal point in product	29
Incorrect placing of decimal point in quotient	12

TABLE VIII

PERCENTAGE DISTRIBUTION OF 100 OF A POSSIBLE 420 ERRORS IN OPERATIONS WITH DENOMINATE NUMBERS IN THE ARITHMETIC-COMPUTATION TEST OF THE STANFORD ACHIEVEMENT TEST

Error	Percentage of Error
No attempt to reduce to usual form	37
Wrong process used (addition substituted for subtraction)	36
Failure to reduce correctly to usual form	17
Error in borrowing	6
Denominate number used as abstract number	4

TABLE IX

PERCENTAGE DISTRIBUTION OF 172 OF A POSSIBLE 900 MISCELLANEOUS ERRORS IN THE ARITHMETIC-COMPUTATION TEST OF THE STANFORD ACHIEVEMENT TEST

Error	Percentage of Error
Failure to follow a direction apparently understood	40
Correct method used but incomplete answer secured	14
Careless computation	14
Wrong process used	12
Incorrect computation of square root of four-place number	10
Incorrect computation of third power of one-place number	10

number of possible errors in each type was determined by multiplying the actual number of such operations occurring in the test by the total number of persons taking the test.

CONCLUSIONS

In the light of the writer's findings, in combination with the recommendations of such studies as those of Touton, Heilman, and Terry,[1] Stone,[2] Williams,[3] and Thorndike,[4] the following disabilities seem significantly important from the standpoint of corrective procedures. In operations with common fractions the outstanding errors are (1) mistakes in reducing fractions to similar fractions before adding or subtracting, (2) failure to invert the divisor in division, (3) incorrect reduction of fractional answers to the lowest terms, and (4) incorrect reduction to lowest common denominator. In operations with decimals the significant errors are (1) disregard of decimal points and (2) incorrect placing of decimal points in products and quotients. In operations with denominate numbers the most common errors are (1) failure to reduce to usual form, (2) mistakes in borrowing, and (3) mistakes indicating inability to reduce units of one denomination to another. In miscellaneous operations the significant errors are (1) failure to follow a direction which is apparently understood, (2) securing incomplete answers, and (3) use of wrong processes. In problem-solving the most common errors are (1) lack of a complete analysis of the problem, (2) incorrect computation caused mainly by difficulties in multiplication and division of integers, and (3) misinterpretation of a problem probably caused mainly by difficulties in reading verbal problems.

The relation of these findings to the problem of remedial procedure[5] seems to deserve brief consideration. The findings in this

[1] Frank C. Touton, Karl K. Heilman, and Esther Jeffery Terry, *Studies of Secondary School Graduates in Their Mastery of Certain Fundamental Processes*. University of Southern California Studies, Second Series, Number 1. Los Angeles, California: University of Southern California, 1927.

[2] Cliff W. Stone, *Arithmetical Abilities and Some Factors Determining Them*. Columbia University Contributions to Education, Teachers College Series, No. 19. New York: Teachers College, Columbia University, 1908.

[3] Lewis W. Williams, "The Mathematics Needed in Freshman Chemistry," *School Science and Mathematics*, XXI (October, 1921), 654–65.

[4] E. L. Thorndike, *The Psychology of Arithmetic*. New York: Macmillan Co., 1922.

[5] For a detailed remedial program designed to aid colleges in rehabilitating students who have deficiencies in arithmetic see H. J. Arnold, "Diagnostic and Remedial Techniques for College Freshmen," *Association of American Colleges Bulletin*, XVI (May, 1930), 262–79.

study, in conjunction with those of the other arithmetic studies previously referred to, disclose certain disabilities which are commonly found in the work of college students and which seem sufficiently significant with relation to college work to warrant special attention in any remedial effort in this field. It should be stated here that there is practically no evidence that the arithmetical deficiencies of college students are so pronounced as to warrant a systematic review of elementary arithmetic. After all, the arithmetic which is actually needed for successful work in college is limited to a relatively few elementary skills.

It seems reasonably safe to predict that the elimination of the disabilities mentioned by means of adequate remedial drill will do much to remove students' handicaps in college courses requiring a reasonable amount of skill in arithmetical computations.

GUIDING PUPILS' READING ACTIVITIES IN THE STUDY OF CONTENT SUBJECTS

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In a previous article[1] the writer reported an investigation of reading difficulties encountered by pupils in Grades VII and VIII in studying American history, mathematics, and general science. The difficulties disclosed by that investigation indicated the need for the five following types of guidance in reading: (1) guidance in the methods of attack required by the reading activities, (2) guidance in the recognition of relations and in other forms of thinking required by the reading activities, (3) guidance in the practices of review, (4) guidance in overcoming difficulties with the vocabulary, and (5) guidance in accurate interpretation. Without doubt teachers of content subjects recognize fully the need for such guidance, but many teachers are at a loss to know just how to inject training in reading into courses already crowded with other things. It is the purpose of this article to suggest ways in which guidance in reading may be provided without making undue inroads into the time allotted to a course.

Guidance should make use of the reading activities required by the course.—Teachers frequently find it difficult to provide training in reading in connection with content courses because such training is regarded as something apart from, and not a part of, the work of content courses. Suggestions for guidance in reading usually relate to special exercises which require teachers to take time from the regular work and to treat reading as a special subject. The suggested exercises may or may not include reading activities actually employed in the study of a given subject. For example, it is sometimes recommended that pupils be taught to select the essential or prin-

[1] James M. McCallister, "Reading Difficulties in Studying Content Subjects," *Elementary School Journal*, XXXI (November, 1930), 191–201.

cipal thoughts of paragraphs. No doubt this exercise gives valuable training in reading which is especially helpful in outlining or in other study activities requiring the pupil to secure the exact thought of an author. However, only a few reading activities actually make use of this procedure. The study activities of some courses require no use of it whatever. In the investigation of reading activities described in the previous article only one occasion was discovered in which the selection of the essential thought of a passage was a necessary study procedure. On that occasion the teacher used the procedure as a special exercise in reading.

Whether or not a specific reading activity is employed in the study of a subject is determined by the character of the materials assigned and by the technique of teaching employed. Consequently, guidance in reading does not necessarily demand the use of general exercises dealing with reading as a special subject. On the other hand, it demands that pupils be taught to perform the reading activities actually required by the course.

During his investigation of reading activities the writer assembled suggestions for guidance in reading from two sources. First, the teachers of the courses were informed daily of the reading difficulties which their pupils encountered, and careful observations were made of the techniques and devices employed by the teachers in assisting pupils to overcome these difficulties. The information thus assembled suggested ways of guiding class groups in their reading activities. Second, the writer experimented with a number of individuals who were encountering special difficulties. These pupils were given individual guidance suited to their needs. The following sections of this article contain illustrations of guidance suggestions secured through these sources. The writer is indebted to Mr. J. C. Mayfield, the instructor of the general-science class in which these observations were made, for permission to use, for illustrative purposes, materials prepared by him.

GUIDING READING ACTIVITIES OF GROUPS OF PUPILS

It is impossible in an article of this character to include a complete list of suggestions for guidance. The examples which will be given are not intended to be an exhaustive discussion of the possibilities

of guidance but are intended to demonstrate how a resourceful teacher may approach the problem. The examples are classified in accordance with the five types of guidance mentioned in the first paragraph.

Guidance in the methods of attack required by the reading activities.— During the observation of the pupils' work on the first unit of the course two reading difficulties were noted frequently: (1) Pupils often failed to secure an understanding of materials because of superficial reading. (2) Pupils sometimes neglected to associate or compare descriptive materials with explanatory figures which accompanied them. As a result of these difficulties the pupils' reports on exercises were often incomplete and revealed evidence of a lack of understanding of the nature and purpose of the exercises. In order to stimulate the pupils to read more intensively, the instructor prepared the following directions for study, which he included in the mimeographed instructions for the next unit.

STUDY DIRECTIONS

No one can tell you everything you should do in studying a unit in science. Probably no two students should do exactly the same things. The exercises for the unit do not require you to understand the unit completely in order to do them. You should study carefully all references whether or not they are necessary to do the exercises.

Do not pass up pictures and diagrams until you understand them. *They are more important than an equal amount of reading material.*

When you feel that you understand the material which goes with one of the exercises, try to do the exercise. Do not hand in the report for correction until you are sure you have it as nearly correct as you can make it.

It was observed, too, that a number of pupils attempted to prepare reports on exercises before materials relating to the exercises were fully understood. Some pupils seemed unable to recognize the character and amount of reading necessary to master the materials. In order to guide these pupils in reading, the instructor supplied them with lists of items which they ought to understand before attempting to prepare reports. For example, in the study of "The Care and Preservation of Foods" they were instructed to secure understandings of the following items: (1) why foods spoil, (2) what bacteria are, (3) what yeasts are, (4) what molds are, (5) where these are formed, (6) how they grow, (7) how they multiply, (8) what the

conditions for rapid growth are, (9) how they live under unfavorable conditions, (10) how they can be killed, and (11) how their growth can be prevented. This list of items was placed on the blackboard, and the pupils copied it as a guide for their reading. Similar lists were sometimes posted on the bulletin board.

Guidance in the recognition of relations and in other forms of thinking.—In the preparation of reports on an assigned exercise at least two reading activities involving forms of thinking are necessary: (1) Pupils must recognize the problem of the exercise. (2) They must recognize the relations of instructional materials to the problem. The following descriptions indicate how the instructor provided guidance in these two activities. The following exercise was being considered.

> Sudden showers of rain often occur on summer days. A friend of yours has been caught and well soaked in such a "thunderstorm" while on a hike. Knowing that you have studied science, he asks you why it rained on him that day when there was no general rain. Tell in a few sentences the facts you could give him so that he would understand why such showers occur.

In order to direct the attention of the pupils to the problem of the exercise, the instructor said, "Turn to Exercise 6. Read the exercise. After you have read it, write out on a piece of paper what you think is to be done." After the pupils had carried out these directions, the instructor placed on the blackboard a list of items which the pupils dictated from their papers. These items were discussed by the pupils, the instructor directing the discussion so that the pupils selected the problem "Why it rained where it did." Finally, he directed the pupils to find an explanation of the problem.

On another occasion the following procedure was employed to guide pupils in associating assigned reading materials with a problem. They were studying the problem: "What changes do you think need to be made in the methods of sewage disposal used in Chicago and the neighboring cities?" The instructor requested all pupils to read the problem silently. Next, he requested one pupil to read it aloud. He then said, "You have the problem before you. What must you know in order to prepare a solution of it?" Several pupils made suggestions, the instructor guiding the discussion by means of questions and comments. Finally, the pupils selected four points to use as guides in their reading: (1) They must know something of past

conditions. (2) They must know the present situation. (3) They must find out what could be done. (4) They must choose the thing which best fitted the case. The instructor placed the four items on the board and then explained that the procedure illustrated a plan of study which could be employed with any problem.

Guidance in the practices of review.—The tests given near the close of the study of a unit usually disclosed certain understandings which some pupils had not mastered. In order to guide the pupils in economical methods of restudying, the instructor prepared lists of review exercises covering the phases of the unit which the pupils had failed to master. These lists were posted on the bulletin board accompanied by score sheets which contained the names of the pupils and indicated the understandings mastered by each pupil. By consulting the score sheet and the list of exercises, a pupil ascertained the phases of the unit which he must review. The following is an example of a review exercise: "Make up a careful statement outline of all the important things you can find in two books regarding 'Water Vapor and Its Part in Weather.' " This exercise was designed to direct attention to significant understandings.

Guidance in overcoming vocabulary difficulties.—Difficulties with the vocabulary disclosed by this investigation appeared in three forms: (1) Some pupils recognized their inability to interpret new terms and made no attempt to proceed until the instructor explained the terms. (2) Others attempted to proceed, but their incorrect interpretations of terms resulted in misunderstandings. (3) Still others passed over new terms without attempting to interpret them. The instructor provided guidance for the first group by means of class discussion; he attempted to anticipate the difficulties of the other two groups and to direct their attention to terms which might give difficulty. Illustrations of his procedures follow.

Various pupils encountered difficulty in interpreting the following exercise because of the technical terms used.

> Make a large up-and-down, or vertical, section through a "low" and a "high" showing the direction of the air movements by arrows and explaining each thing shown. Thus, if you show cold air moving downward in a "high," you would label it "Cold air sinking because of its greater density." Include in your diagram the formation of clouds near or in a "low." Make the diagrams as complete as you know how.

The instructor requested the pupils to read the directions for the exercise and to note particularly the things they did not understand. After reading the directions, the pupils suggested such items as, "I don't understand what it means by 'high' and 'low.' " "I don't understand what it means by 'up-and-down.' " The instructor explained these terms and also illustrated an "up-and-down section" by means of diagrams.

In order to direct attention to new terms, the instructor frequently included in the directions for study lists of significant terms for special study. For example, in connection with a unit entitled "The Work of the Body" the instructor prepared a list of "Things You Are Expected To Understand about the Work of the Body." The following terms were included in this list: "air sac," "arteries," "bronchi," "capillaries," "chemical change," "dissolve," "digestion," "excretion," "impulse," "lens," "nerve cell," "nerve fiber," "reflex act," "respiration," "retina," "veins."

Guidance in accurate interpretation.—Inaccuracy may appear in many forms depending on the definition given to the term. In this investigation inaccuracy in the interpretation of directions and inaccuracy in the proofreading of reports were noted frequently. The procedures of guidance used in dealing with these two forms of inaccuracy are suggestive of what may be done in other cases.

The instructor prepared a mimeographed page of "Directions for Written Work in Science." It contained directions such as the following: "All papers will be written in ink." "Use the best English you can, giving particular attention to proper paragraphing, penmanship, and spelling." "At the top of the sheet place the indorsement." The pupils violated these directions in various ways. For example, some pupils neglected to place appropriate indorsements on their papers. In directing the attention of the pupils to their errors, the instructor first read the directions aloud while the pupils read them silently. In connection with the reading he called attention to the more significant errors of the pupils. Next he instructed each pupil to prepare a written list of the directions which he had violated. After these lists were prepared, each pupil was held responsible for avoiding further errors.

In order to stimulate accuracy in the preparation of written work,

the instructor refused to accept any written work which had not been proofread. Pupils were required to write "proofread" in the upper left corner of the first page of each report to signify that the report had been checked. Either of two procedures might be employed in proofreading. The pupil might proofread his own reports without assistance; if he desired help, he might request another pupil to check the errors in his reports before he attempted to make corrections.

The teaching procedures which have been described are illustrative of an approach by which guidance in reading becomes a definite phase of the regular study activities of a course. No reading activities aside from those demanded by the regular work of the course are suggested. The pupils are simply guided in the reading activities which they must perform to secure understandings of science materials. This approach enables the teacher to provide guidance in reading without detracting effort from the regular class activities. It solves the problem of the teacher who recognizes the need for guidance in the reading of the pupils but who does not desire to devote time to special reading exercises. In general, the procedures for guidance which have been described took three forms: (1) mimeographed directions concerning study activities, (2) mimeographed guides in the form of study exercises, and (3) classroom instruction designed to guide reading activities.

It was not practical at the time of this investigation to set up controlled conditions for determining the effectiveness of the procedures used. However, the indirect evidence available indicated that the pupils were assisted by the guidance. For example, assimilation tests which were given at the close of each unit indicated that the ability of the pupils to interpret science materials improved throughout the year. This improvement was shown by a reduction in the number of trials on the assimilation tests made by each pupil. The plan of testing required that each pupil master all the essential understandings in a unit. If a test paper indicated that a pupil did not understand all the items, he was required to review the unmastered phases of the unit and to repeat the test. The average number of test trials per pupil in four class sections for each unit is given in Table I. The data show that, in general, the number of trials per pupil decreased throughout the year. This decrease implies an im-

provement in the ability to secure understandings of science materials. These facts suggest that the teaching procedure used in the class was effective and give evidence of the value of the guidance procedures. However, it should be recognized that guidance in reading was only one of several items which may have influenced the pupils' performance on assimilation tests. Consequently, the results of the test performances can be interpreted only as indirect evidence of the effectiveness of the guidance.

TABLE I

AVERAGE NUMBER OF TRIALS PER PUPIL IN FOUR CLASS SECTIONS ON ASSIMILATION TESTS ON SEVEN UNITS IN GENERAL SCIENCE

Unit	Section A	Section B	Section C	Section D
I	3.25	3.04	2.90	2.91
II	2.65	3.04	2.79	2.65
III	1.25	1.25	1.32	1.12
IV	2.09	2.20	2.00	1.83
V	1.55	1.48	1.72	1.47
VI	1.[illegible]	1.28	1.32	1.25
VII	1	1.13	1.60	1.20

GUIDING READING ACTIVITIES OF INDIVIDUALS

Although most of the reading difficulties encountered by pupils in studying content subjects may be corrected by means of group guidance similar to that described, pupils who require individual attention are found in almost every class. Such pupils are not likely to succeed well under group instruction alone. In the course of this investigation the writer made special studies of a number of individual pupils. The chief objectives of these studies were to determine the character of an individual's handicaps and to enable him to develop power to perform required reading activities unassisted. The pupils studied manifested reading difficulties requiring guidance similar to the types suggested in the first paragraph of this article. Since the limits of this article preclude complete reports of these studies, only one study is reported illustrating how one pupil was assisted to improve her methods of attack in reading mathematics. Similar procedures were employed with other pupils.

The pupil was enrolled in a seventh-grade class in mathematics.

Observations of her study activities disclosed two types of difficulties which were primarily the results of her methods of attack in reading: (1) She had formed the habit of reading descriptive material superficially and consequently failed to secure proper understandings. (2) She frequently misinterpreted words because of lack of preciseness in reading. Examples of these difficulties follow.

Superficial reading.—The pupil was observed while she was studying the following passage.

Equations studied in preceding chapters.—In the preceding chapters we have used the equation as a tool for solving problems. All of the equations, so far, have been of a simple type and easily solved. Thus, in studying perimeters, we found equations of the form $120=6s$. In studying triangles we used equations like $4x+2x+5x=180$ to express the sum of the angles. The equation $x+3x=90$ may mean that two angles are complementary, and $m+5m=180$ may mean that two angles are supplementary. The acute angles of a right triangle satisfy relations like $a+6a=90$. The circumference of a circle is found by means of the formula $c=\pi d$. Similar triangles lead to equations like $\frac{x}{5}=\frac{8}{15}$.

All these illustrations show that one cannot go very far in the study of mathematics without a knowledge of algebra (in which letters are often used for numbers), in particular of equations.[1]

After the pupil had read the passage, the observer asked, "In what ways have you learned to use equations?" The pupil gave in reply two uses mentioned in the passage. She read the passage a second time but found no additional uses. The observer asked her to read it a third time. After reading it again, she explained three more uses. Since she was able to interpret the passage on re-reading, her difficulty appeared to be caused by superficial reading and not by inability.

Lack of preciseness in reading.—The pupil read the following directions for an exercise: "Find the acute angles of a right triangle if one is 3 times the other; $\frac{2}{3}$ as large as the other."[2] After the pupil had read the directions, she drew a right angle and divided it into two acute angles. The observer suggested that she re-read the directions. After doing so, she drew a second right angle and divided it into three acute angles. Finally, the observer called her attention to the

[1] Ernst R. Breslich, *Junior Mathematics*, Book One, p. 205. New York: Macmillan Co., 1925.

[2] *Ibid.*, Exercise 10, p. 94.

word "triangle" in the directions. She recognized her difficulty immediately and drew a triangle. Her difficulty was caused by misreading the word "triangle."

The preliminary observations described were made toward the end of the school year 1926–27, and no guidance was attempted until the following year. At the time the guidance was begun, the pupil was encountering much difficulty. She was inaccurate in her work and required an unusual amount of individual attention from the instructor. She considered mathematics especially difficult and was somewhat discouraged with her progress.

In view of the character of the pupil's difficulties, the writer organized the guidance to accomplish two objectives: (1) to acquaint her with the character of her mistakes in reading and (2) to stimulate her to put forth a purposeful effort to overcome them. In order that these objectives might be attained, arrangements were made for the pupil to study mathematics during one study period a week under the direction of the writer. The notes made for several of these periods indicate the nature of the guidance.

First Study Period

The passage from the textbook read as follows:

"*What we shall study in this chapter.*—In chapter i we have learned how to find the area of a rectangle and square. We shall now take up the problem of finding areas of other well-known figures. Notice that the city blocks of a business section (Fig. 24) are triangles, rectangles, squares, or other quadrilaterals which are not rectangles or squares. The regularity of the occurrence of such figures may be broken by circular surfaces, such as circular fountains or circular parks. Thus, Block A is a rectangle, B is a square, C is a parallelogram, D is a trapezoid, E is a triangle, and F is a circular park. We shall work out the formulas for finding the areas of these surfaces. The formulas will be used to solve problems."[1]

Guidance Procedure

Observer: "Read the first paragraph and tell me what you are going to study in this chapter."

Pupil: "We have studied the areas of rectangles and squares; now we are going to find the areas of all other figures."

Observer: "What else are you going to learn?"

Pupil: "That's all. [Reads paragraph again.] Oh, we are going to work out formulas."

Observer: "Anything else?"

[1] *Ibid.*, Book Two, pp. 39–40.

Pupil: "Use formulas for solving problems."

It was evident from the pupil's replies that she was reading descriptive materials superficially and, for that reason, was probably not securing a satisfactory understanding of the textbook materials when studying independently. This difficulty was explained to the pupil.

SECOND STUDY PERIOD

The following passage from the textbook was read: "*Meaning of parallelogram.*—A quadrilateral (Fig. 25) whose opposite sides are parallel is a parallelogram."[1]

GUIDANCE PROCEDURE

Observer: "What do you learn from this section?"

Pupil: "Meaning of 'parallelogram.' "

Observer: "What is a parallelogram?"

Pupil (reading from text): "A quadrilateral whose sides are parallel."

Observer: "Is that definition complete?"

Pupil: "A quadrilateral whose sides are parallel is a parallelogram."

Observer: "Read it again."

Pupil: "A quadrilateral whose sides are parallel is a parallelogram."

The observer then pointed to the word "opposite," which the pupil had overlooked in reading.

THIRD STUDY PERIOD

The directions for the exercise read:

"The fact that the opposite sides of a parallelogram are equal suggests the following simple construction of a parallelogram.

"Draw AB and AD (Fig. 27).

"With radius equal to AD and with B as a center, draw an arc near C.

"With radius equal to AB and with D as a center, draw an arc cutting the first arc.

"Let C be the intersection of the two arcs.

"Draw BC and DC.

"Then $ABCD$ is the required parallelogram."[2]

GUIDANCE PROCEDURE

The pupil drew AB and AD. Then she read the directions "with radius equal to AD" but repeatedly attempted to use a radius equal to AB. When she failed to succeed, she started a new figure. The observer suggested that she read the directions again. She did so and discovered her own error.

In the study of each exercise the observer pointed out to the pupil the character of her difficulties, which in most instances were difficulties in reading. While a difficulty of some other type occasionally required attention, emphasis was continually placed on reading. As

[1] *Ibid.*, p. 40. [2] *Ibid.*, Exercise 4, p. 41.

soon as the pupil appeared to sense the character of her difficulties, the observer supplied her with a copy of the following suggestions to guide her while studying.

1. Read all descriptive or explanatory material several times. Be sure that you understand every point. When possible, trace points by reference to figures.
2. Do not pass over any symbol or expression which you do not understand.
3. Read carefully and accurately at all times.

The first interview with the pupil was held on November 15, 1927. With the exception of two periods of absence she worked under the direction of the writer for one fifty-minute study period each week until March 14, 1928. Throughout this period she was repeatedly reminded of the necessity for careful and accurate reading and, when she encountered difficulties, was referred to the three suggestions for study. As a result of these reminders she became aware of the general character of her difficulties and learned to detect her own mistakes.

On January 3, 1928, when she came to the writer for assistance, her first remark was, "I've passed the test." Inquiry disclosed that she had passed the assimilation test for the third unit of the course on the first trial. It was the first time she had succeeded in passing an assimilation test at the first trial, and she was much encouraged by her achievement. On February 7, 1928, the instructor in mathematics reported that she had made marked improvement and that her work was satisfactory. During the four weeks following this report no reading difficulties were noted by the observer. On March 14, 1928, the pupil was released from corrective work.

The instructor's records showed that the pupil required two reteachings on Unit I, one reteaching on Unit II, but no reteachings on Units III and IV. The guidance was begun with Unit II. At the close of the first semester the instructor's report to the principal's office concerning the pupil's work read:

> There has been marked improvement in this pupil's work. Her oral and written responses have increased in accuracy. She requires less time, less individual attention, and less reteaching in the assimilation of the principles of the course than at the beginning of the year. Her attitude is good, and her present status in the class is very hopeful.

At the close of the school year the report of the instructor characterized her progress as follows:

This pupil has made rapid strides forward in her work in mathematics. She requires less reteaching and individual help than she did at the beginning of the school year. She entertains a most wholesome attitude toward her work and has a fine spirit of co-operation. It is a pleasure to commend her for splendid improvement during the year.

There is no doubt that this pupil improved markedly in mathematics as a result of being given guidance in reading. The chief contribution of the guidance was to make her aware of her own shortcomings and to stimulate her to put forth a purposeful effort to overcome them. Before this instruction was given, she had not sensed the necessity for intensive reading. During the period of guidance she became aware that superficial reading was the cause of many of her mistakes and of her lack of understanding. As soon as she sensed the cause of her difficulties, she was in a position to overcome them.

Techniques of guidance similar to those used with this pupil have certain values and limitations which govern their usefulness. Since they are employed with individual cases, they have the advantage of giving a direct approach to the needs of the pupil. The analysis of the pupil's difficulties before guidance is attempted assures training adapted to individual needs. Individual instruction provides an opportunity for the instructor to determine the effectiveness of the guidance from the individual's progress. The case reported demonstrates the effectiveness of the technique. Two other pupils made noteworthy progress in mathematics and three in science as a result of similar experiments. It should be recognized, however, that individual guidance has the practical limitation of demanding an excessive amount of an instructor's time. In a class of average size it would be impossible for an instructor to give individual attention to any considerable number of cases. For this reason individual guidance should probably be used only in extreme cases. It will then prove an effective means of aiding pupils to recognize their handicaps and of stimulating them to independent effort.

SUMMARY AND INTERPRETATION

Guidance in reading may be effectively carried out by associating it closely with the regular study activities of a course. By employing this approach, the regular classroom teacher may provide training in

reading without making undue inroads into the regular activities of a course. Such guidance may take the form of group instruction or, in extreme cases, of individual training. Either form results in noteworthy improvement in the effectiveness of instruction. Such guidance not only assists pupils with the regular work of a course but also stimulates independent effort and self-confidence.

Each content course provides opportunity for developing new reading habits and skills. Because of the varied character of the instructional materials assigned in different courses and of the varied techniques of teaching employed, pupils encounter numerous types of reading activities. The performance of these activities leads to greater reading ability and to increased effectiveness of study habits. These activities should be guided carefully and purposefully in order that pupils may grow continually in power to study independently.

SOME FACTORS WHICH INFLUENCE THE CHILD'S CHOICE OF OCCUPATION

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The factors which influence a child's vocational ambition are numerous and subtle. Doubtless the child himself is frequently unaware of the reason why he chooses a particular occupation. The psychoanalytic school has clearly established the fact that the individual's motives are often subtly concealed. Gates states: ". . . . human behavior is initiated and directed by motives that are subtly concealed. This, I believe, is the substance of the Freudian contribution. It is a very important contribution."[1] The writers realize that the motives and directing forces of human conduct are difficult to identify and are often obscured by apparent, but relatively unimportant, overt indicators. They have attempted, however, to determine the extent of the influence of certain obvious conditioners of vocational and occupational choice. To study some of the motives which underlie the child's choice of occupation, the writers administered Lehman's Vocational Attitude Quiz to a large number of school children in Topeka, Kansas, and in Kansas City, Missouri.

Lehman's Vocational Attitude Quiz consists in a comprehensive and catholic list of two hundred occupations. First, the children are asked to check only those occupations in which they are willing to engage as life-work. They are then asked to indicate: (1) the three occupations which they would like best to follow, (2) the one occupation which they most likely will follow, (3) the three occupations which they think are the best money-makers, (4) the three occupations which they believe are most respected, and (5) the three occupations which they believe will require the least amount of work.

[1] Arthur I. Gates, "Contributions of Psychological Research to Education," *School and Society*, XXXI (April 12, 1930), 493.

The number of children at each age level from whom data were obtained is presented in Table I.

As each child was asked to check the one occupation which he thought it most likely he would follow and the three occupations which he believed to be the best money-makers, it was possible to ascertain the number and the percentage of children who had chosen to follow an occupation which they regarded as one of the three best money-makers. It was asssumed that, if a child chose to follow an occupation which he thought extremely lucrative, two interpretations might justly be attached to his response: (1) The child's choice

TABLE I

NUMBER OF WHITE BOYS AND GIRLS OF VARIOUS AGES WHO ANSWERED LEHMAN'S VOCATIONAL ATTITUDE QUIZ

Age	Boys	Girls	Total
8½	866	1,038	1,904
9½	1,342	1,405	2,747
10½	1,677	1,607	3,284
11½	1,640	1,607	3,247
12½	1,734	1,633	3,367
13½	1,588	1,561	3,149
14½	1,416	1,511	2,927
15½	1,244	1,392	2,636
16½	1,003	1,069	2,072
17½	606	570	1,176
18½	230	139	369
Total	13,346	13,532	26,878

might have represented his true estimate of the most remunerative occupations. (2) The child might have rationalized his choice by advancing the claim that his chosen occupation is highly remunerative. Either interpretation leads to the conclusion that the desire for money strongly influences the child in his choice of vocation. Moreover, it is clear that the soundness of the child's judgment regarding the amount of money to be made in the given occupation would have little to do with whether he were *motivated* by the desire for money.

The percentage of children who thought that the occupations which they intended to enter were among the three most respected was also ascertained. It was assumed that, when a child chooses an

occupation which he soon afterward declares to be one of the three most respected occupations, his choice is based to some extent upon his sensitivity to public approval. In addition, the percentage of children who elected occupations which they also listed among the three requiring the least effort was determined.

Table II presents the percentages of the boys and girls who appeared to be motivated by (1) financial return, (2) public esteem, and (3) a desire for easy work. Figures 1 and 2 present the data for

TABLE II

PERCENTAGES OF BOYS AND GIRLS AT VARIOUS AGE LEVELS WHO JUDGED THEIR CHOSEN LIFE-OCCUPATION TO BE (1) ONE OF THE THREE BEST MONEY-MAKERS, (2) ONE OF THE THREE MOST RESPECTED OCCUPATIONS, AND (3) ONE OF THE THREE OCCUPATIONS REQUIRING THE LEAST AMOUNT OF WORK

AGE	ONE OF THE THREE BEST MONEY-MAKERS		ONE OF THE THREE MOST RESPECTED OCCUPATIONS		ONE OF THE THREE OCCUPATIONS REQUIRING THE LEAST AMOUNT OF WORK	
	Boys	Girls	Boys	Girls	Boys	Girls
8½	28	27	14	19	14	16
9½	31	28	21	20	14	15
10½	31	32	21	23	13	14
11½	34	30	20	23	12	12
12½	36	30	20	24	11	10
13½	33	25	20	20	9	9
14½	32	22	18	15	8	5
15½	30	19	18	13	6	5
16½	22	12	17	11	3	4
17½	18	10	13	7	5	4
18½	23	12	16	6	4	4

boys and girls separately. These data suggest that, of the three factors mentioned, the expectation of large monetary return is of foremost importance, the hope of obtaining marked social approval is second, and the lure of an easy life is of least importance. These results were found to be consistent for both sexes as well as for each age level.

The writers realize that these three types of motivation are by no means the sole determiners of vocational choice. Vocations are chosen for many reasons other than these. Other motives may include (1) security of tenure, (2) freedom from various kinds of bodily hazards, (3) fitness for the occupation, (4) convenience, or opportunity to enter the profession, and (5) opportunity for service. The

writers made no attempt to measure the relative strength of factors other than the three mentioned for several reasons. In the first place, such a comprehensive study would have consumed an enormous amount of the pupils' school time. Moreover, the child has probably

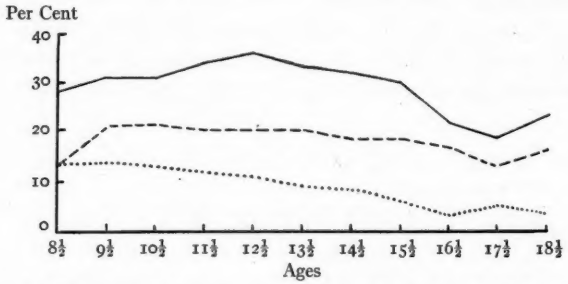

FIG. 1.—Percentages of boys at various age levels who judged their chosen life-occupations to be (1) one of the three best money-makers (solid line), (2) one of the three most respected occupations (broken line), and (3) one of the three occupations requiring the least amount of work (dotted line).

FIG. 2.—Percentages of girls at various age levels who judged their chosen life-occupations to be (1) one of the three best money-makers (solid line), (2) one of the three most respected occupations (broken line), and (3) one of the three occupations requiring the least amount of work (dotted line).

developed less definite attitudes toward the additional factors than toward those which were studied. Finally, many of the causes advanced by children and adults for their behavior are untrustworthy, particularly when a considerable number of individuals are asked to account for their vocational or occupational choices. The children were asked to state which occupations they thought most lucrative,

which ones they thought most respected, and which ones required least effort because these three factors are the generally-recognized and very obvious reasons for occupational choice. These questions are also easily understood by children and are unlikely to yield evasive responses. The numerous unconscious motives were not investigated, nor were many other reasons.

Two minor sex differences are revealed in Figures 1 and 2. The tabulations regarding self-exertion or required effort as a motivating force brought out no marked sex difference. Money-making opportunity and public esteem appeared to be stronger influences for the older boys than for the girls of the same ages. This finding corroborates in part the work of Douglass, who studied by means of a questionnaire the vocational choices of several thousand high-school Seniors. Among other questions Douglass asked his subjects to state the reasons for their choices. Douglass writes as follows: "Throughout boys were more likely than girls to stress the financial aspect, and girls showed a constant tendency to rank social service higher than did the boys."[1] It is of interest to attempt to account for this sex difference. It appears that girls who are somewhat mature look upon their prospective occupations merely as temporary employment more often than do the boys. Perhaps the girls often hope to secure economic independence and a desirable social position through a fortunate marriage. It is possible, too, that the girls become increasingly cognizant of the fact that many financially profitable vocations are not open to them and that many highly-respected occupations are not easily entered. The girls probably realize increasingly that, because of their sex, their lives are destined to be lived under relatively restricted conditions. For the boys the problem of vocational choice is an entirely different matter. Many of the boys realize that their vocational choice will be irrevocable; in their vocations they must earn their livelihoods for a life-time. Economic independence and social standing must be attained or retained by the boys, in most instances, by continuous occupational endeavor.

Figures 1 and 2 show that at all age levels the children chose vo-

[1] Aubrey A. Douglass, "Vocational Interests of High-School Seniors," *School and Society*, XVI (July 15, 1922), 81.

cations which they regarded as highly remunerative more often than they chose those which they regarded as highly respected or as requiring little effort. Apparently, these children are more concerned about financial success than about marked social approval. On the other hand, the children may have believed that financial success in itself is likely to bring marked public respect. Whatever the true explanation for the children's choices, it is clear that, if the data represent honest statements, these children have been greatly misled because, obviously, only a very small percentage of the pupils will find opportunity to enter the occupations and professions which they chose. These data reveal only the illusory hopes of a large number of school children and the probable lack of the information and the mature judgment necessary to enable them to choose intelligently occupations which they might have a chance to enter. It is evident that many children are groping in darkness and are in need of light. Of late years the effort to give vocational guidance has experienced a steady expansion until today it permeates most public-school systems. Just what sort of guidance would remedy the situation presented in Figures 1 and 2?

In Table II and in Figures 1 and 2 there is a noticeable decline beyond age fifteen and a half in the percentage of children who chose a vocation which they also placed in one of the three categories studied by the writers. It seems likely that this general tendency signifies that, in choosing their vocations, the older boys and girls are influenced more by reality, that is, by an understanding of what is actually possible or feasible for them to do. Nevertheless, the older children may be greatly influenced by the three factors which the writers have studied even though these children realize that their chosen occupation is not one of the three best money-makers, one of the three most respected occupations, nor one of the three least arduous occupations. Meiklejohn has recently stated that the modern college student is caught between the ideals of his parents and those of his teachers. The teachers wish the boy to become educated; his parents wish him to meet with worldly "success."

> Which way shall he go? In general, of course, he is carried away on the tide of his father's success and power; he follows the feeling and tradition of his group. . . . .

> Of course, we all agree, the intellectual and moral and spiritual values are supreme. Of course, material prosperity is only external and instrumental. But we have said the words so often, we have heard them said so regularly that they have lost all effective meaning so far as our action and our thinking are concerned.[1]

Under such circumstances the college teacher's task becomes increasingly difficult.

The child in the public school is especially a creature of craving and desire. The school seeks to make of him an individual who possesses ideals. The ideal of becoming rich is one that the school stresses only indirectly; the child acquires this objective largely from his social and home contacts. The data here presented seem to evidence the fact that the ideal of affluence is tenacious. When it is permitted to influence too greatly a person's choice of vocation, it is, of course, pernicious. What is to be done? Although the writers do not propose to attempt to answer this question, the following suggestions seem to be pertinent. (1) Courses in vocational guidance and the like might well incorporate exact data with regard to the financial returns of numerous occupations. (2) Data might well be presented which show the present demand for the several types of workers, and exact information with regard to the financial status of the average wage-earner should do much to modify the illusory hopes of many prospective workers.

[1] Alexander Meiklejohn, "Educational Leadership in America," *Harpers Magazine*, CLX (March, 1930), 441–44.

A CASE IN REMEDIAL READING

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The purpose of this article is to describe one of the most extreme cases of reading disability tutored at the Minneapolis Child Guidance Clinic and to describe the method of instruction used.

The subject was reported to the clinic by the principal of his school because of his marked reading disability. At that time, November 26, 1929, he was thirteen years and nine months of age. His reading handicap had been recognized by his teachers since his first year at school. After he had repeated Grades I A, II B, II A, and IV A and had attended school for one summer during the second grade, the school authorities decided that it was useless for him to repeat grades as he was not learning anyway, and he was therefore promoted with his class each succeeding term. At the time of the clinical examination he was in Grade VI B.

The social history indicated that the boy's father had been much retarded in reading and that the younger sister had shown the same difficulty but by sheer perseverance had progressed with her class. Although the subject's disability had been evident for years, the condition had not resulted in an unhealthy emotional attitude. He was interested, pleasant, and extremely co-operative. After he recognized his difficulty, he was anxious to overcome it, and he cooperated well with anyone who proposed to help him.

In May, 1927, two years before the study of the case at the Minneapolis Child Guidance Clinic, the subject had been examined by the special-education department of the public schools to determine if he could be given special-class instruction. His intelligence quotient, in spite of his reading handicap, was 85—a rating too high to entitle him to admission to the special class. In November, 1928, he was tested again, and his intelligence quotient was found to be 86. At that time a diagnosis was deferred, and the advice given was to keep him with the regular classes and to allow him to proceed slowly. He continued to attend his classes and

showed a good attendance record. In the autumn of 1929, however, he was reported as a discipline problem because he could do little of the class work and continually disturbed the other pupils by whispering during study periods.

When the subject was examined at the clinic in November, 1929, he was given a battery of tests to determine his potential level, educational achievement, and special abilities. A careful analysis of his special disability in reading was made. His chronological age was thirteen years and nine months; his mental age, measured by the Stanford-Binet tests, thirteen years and seven months; his intelligence quotient, 98. He had a basal age of ten years and a range through Year XVIII. His failures were the most numerous in the vocabulary tests or tests involving reading. Among the tests for Year XVI he succeeded on the problem of the inclosed boxes, and in the tests for Year XVIII he succeeded on Binet's paper-cutting test. In view of the subject's marked reading difficulty, the findings were considered tentative until the subject should overcome his reading handicap.

In all mechanical and performance tests—such as the Stenquist Construction Test, the Stenquist Mechanical Aptitude Tests, and various form-board tests—the subject obtained maximal adult scores, thus disclosing superior mechanical ability. (When the tests were given, the performance tests were presented first in order to give the subject considerable experience with success and to insure interest.) In tests of social adaptability, such as the Porteus pencil maze test, he revealed extreme caution, foresight, and deliberation. His mental age as shown by the performance tests was fourteen years and six months.

In the educational achievement tests the results were quite different. On the Gray Standardized Oral Reading Check Tests and the Gates Graded Word Pronunciation Test, the subject attained an age level of seven years, approximately the first-grade level. Similarly, his ability level in silent reading as shown by the Gates Silent Reading Tests was eight years, or second-grade level. Hence, the subject's record in reading both as to rate and errors approximated that of the first grade. He lacked phrase and sentence rhythm, and, when he attempted to read orally, it was apparent that his method of observing and studying word forms was extraordinarily laborious

and inadequate. He had no consistent method. Frequently when the boy came to a difficult word, he pronounced all the letters in a whisper (as k-i-t-t-e-n), read the word backwards ("saw" for "was" or "ton" for "not"), or substituted words in an attempt to conform to the context ("grass" for "leaves" and "houses" for "home"). Except in the case of *m*, *n*, *b*, *p*, *d*, and *q*, he showed no confusion in distinguishing letters alike in form.

In spelling, the subject approximated the same level as in reading. He could spell only the simplest words, but he did better in oral than in written work. When such words as "with," "see," or "do" were pronounced, he was quite incapable of naming letters which would represent the sounds reasonably well.

Tests revealed that he was not a mirror reader. He was definitely right-handed, and tests of his hearing and vision failed to disclose any sensory defects. It seemed reasonable to assume, therefore, that the patient's reading disability could not be attributed to inferior capacity, to observable sensory defects, to emotional disturbance, nor to hand-eye cross-dominance. His general physical condition was reported as excellent. It was necessary, therefore, to look elsewhere for the cause of his disability. In view of these findings, the following recommendations were made.

A program should be arranged whereby the subject would be given opportunity to take manual training and shop work so that he might realize his superiority in this accomplishment. At the same time he should receive special instruction in order to relieve his reading disability. A synthesis of the methods suggested by Fernald and Keller,[1] Orton,[2] Gates,[3] Monroe,[4] and others[5] should be tried.

[1] Grace M. Fernald and Helen Keller, "The Effect of Kinaesthetic Factors in the Development of Word Recognition in the Case of Non-Readers," *Journal of Educational Research*, IV (December, 1921), 355–77.

[2] Samuel T. Orton, " 'Word-Blindness' in School Children," *Archives of Neurology and Psychiatry*, XIV (November, 1925), 581–615.

[3] *a*) Arthur I. Gates, *New Methods in Primary Reading*. New York: Teachers College, Columbia University, 1928.

b) Arthur I. Gates, *The Improvement of Reading*. New York: Macmillan Co., 1927.

[4] Marion Monroe, *Methods for Diagnosis and Treatment of Cases of Reading Disability*. Genetic Psychology Monographs, Volume IV, Numbers 4 and 5. Worcester, Massachusetts: Clark University Press, 1928.

[5] For references with regard to remedial instruction in reading, see William Scott Gray, *Summary of Investigations Relating to Reading*, pp. 204–8. Supplementary Educational Monographs, No. 28. Chicago: Department of Education, University of Chicago, 1925. Supplements to this monograph are published yearly.

The pupil's outstanding difficulty seems to be his inability to identify and blend the phonetic elements; that is, he sees discrete letters but fails to grasp the word form or configuration. In order to train him to recognize words, it is suggested that the kinaesthetic method of Fernald and Keller be reinforced by having the subject sound the phonetic elements while he is tracing and looking at the words. As the visual units are detected in the word, the pupil should give the sound equivalents and then blend them together so that the total word is produced. Any device or method which might be useful in overcoming the subject's difficulties should be utilized, but all exercises should be short and easily comprehended in order to increase his speed of reading and should be such as will promise success. Care must be taken not to emphasize to the pupil that he is making errors or that his reading ability approximates that of a first-grade pupil. The *Federal Textbook on Citizenship Training*[1] is recommended as a reading book because of its interest value, its simplicity, and the gradually increasing difficulty of the selections.

The patient should receive much encouragement and praise for his effort and any apparent success. If possible, it should be arranged for him to go to the second grade for his reading and spelling with the understanding that he is going to be the teacher's assistant. He can be made distinctly helpful there and, at the same time, be given drill that will supplement the remedial instruction.

To carry out the recommendations of the clinic, the writer was secured as a tutor and began at once to act upon the suggestions offered for treatment. A special program was provided for the subject in which he was to act as "helper" in the second grade, where he could correct the spelling on the board, direct the best division of the class in reading, and "help" in the room during the periods devoted to reading, phonetics, and spelling. He continued his work in Grade VI B in arithmetic and geography and was promoted to Grade VIII B in manual training. On three days of each week a period was provided for individual instruction in reading given by the writer. This period lasted from twenty minutes to an hour, according to the interest of the pupil. The instruction was given in a separate room containing the necessary chairs, table, and blackboard, where the work could be planned for individual needs without interruption from others.

A variety of methods was used in an effort to correct the reading disability. The tracing method of Fernald and Keller, modified as recommended, was used with words which gave particular difficulty and which could not be easily introduced in a more economical

[1] *Federal Textbook on Citizenship Training:* Part I, Our Language. Prepared by Lillian P. Clark. Washington: United States Bureau of Naturalization, 1924.

way; the phonetic method was used throughout the treatment in the case of words which could be treated phonetically. Spelling of words was occasionally resorted to and proved to be valuable. Syllabication, phrasing, and drill on perception helped to develop independence and accuracy.

The *Federal Textbook on Citizenship Training* was used as a basic reader during the early lessons of the period, but more dramatic material was given each week in a supplemental story devised by the writer, which was presented to the pupil in typewritten form. This story became an event of the week, for as soon as the pupil could read it well, he was given a copy of each story to keep in a folder, which was to become his book. The second-grade teacher permitted the boy to read the weekly story to her class as a basis for language discussion. He liked these stories, and, besides learning to read them, he learned how to spell and write the words used by writing sentences dictated from the reading material.

Because the subject did not understand phonetic combinations, words were first introduced by the tracing method. The modification in method was valuable in teaching phonetic sounds. Since the pupil already had an extensive speaking vocabulary, the building of word families seemed to be valuable. At the beginning of the tutoring period the pupil could name all letters of the alphabet except *w* and *q*, and the introduction of these two letters was relatively easy. New elements were introduced one at a time, preferably in old and familiar context. In each lesson a few words beginning with the letters *m* and *n* and a few containing these letters within the word were presented. Confusion of the letters *b*, *p*, *q*, and *d* was attacked in the same way, and a few minutes of practice on these letters was given in each of many successive lessons. Only in this way could habits of careful perception be built up and monotony be avoided.

Each lesson consisted in an integration of reading, spelling, and writing as a unit; that is, each lesson included all three activities, yet one activity was not given a special part of the period. All aids to reading were used in the way in which they could best fulfil the aim of the lesson. As the spelling words were dictated in sentences, attention could be given to the careful formation of letters,

height of letters, and slant. The subject's writing lacked co-ordination; consequently, in the first lessons a "frame" was made to assist him in developing letter forms. Lines were drawn on the board horizontally so that the pupil would be guided to write in a straight line. Other lines were drawn at an angle to guide the writer in his slant. Each letter was written directly on a slanting line. The spacing of these lines regulated the spacing between letters. This technique, which was devised by the psychologist at the clinic, proved very helpful in drawing early attention to the essentials of good writing. Use of the frame was soon discontinued in order to prevent the pupil from placing dependence on the device. He began to take pride in his writing, which improved from week to week. More important still, perception of the letter formations seemed to improve his perception of correct spelling and word forms. Differences and similarities in words became evident. In his earlier writing the word forms were so indefinite that comparison of words was of little value in the learning of new words.

As it was desirable for the boy to have other tools besides phonetics for independent work, instruction was given in the formation of long words from short ones and in the addition of common suffixes. Instruction on such words as "lone," "lonely," "loneliness" was a part of the drill periods. "Railroad," "sandbox," "letter-opener," and similar words showed that many long words are chains of short ones and that they can be read by giving attention to familiar parts. At the beginning of the period of instruction the subject stopped short when he encountered a polysyllabic word and hesitated before attempting it. However, by uncovering a word of this kind syllable by syllable, he began to recognize familiar parts and to attempt unfamiliar parts so that complete words, such as "dissatisfaction," no longer looked insurmountable.

Although constant drill was given in careful perception and mastery of words, no single method was employed in working out new words. The subject was encouraged to spell a word, to sound it, or to use the context as an aid in distinguishing unfamiliar parts. Lip-movement and subvocal aids were gradually eliminated. The pupil soon found that he could perceive phrases before reading them and began to develop greater fluency and speed of reading.

Syllabication was taught during a period given to study of the dictionary. Among the diacritical marks only those indicating long and short vowels and accent marks were emphasized. Other marks were looked up in the table when needed. Three phonic rules for one-syllable words (the rules governing words with final *e* as "hope," words without final *e* as "hop," and words with a double vowel as "boat") were taught and used as aids in pronunciation. Attempts to divide words into syllables, the divisions later being checked by the use of a dictionary, provided two very interesting and profitable lessons.

Phrasing was taught by grouping words in a sentence on the board and encircling the groups with chalk marks. Then a new sentence was written with no artificial markings. The subject was asked to read the second sentence and to attempt to do good phrasing.

In the study of new words only those which were meaningful to the subject were included. As a check on comprehension the instructor often reviewed a few words in the lesson by pointing to a word and asking the pupil to use it in a sentence.

The procedure in each lesson was based on the accomplishment of the pupil in the preceding lesson. Each lesson had a definite purpose. Each lesson began with a review of some familiar material to establish self-confidence and was closed with a review of familiar material to leave a sense of satisfaction.

On March 6, 1930, five weeks after the beginning of the special instruction, the psychologist at the clinic tested the subject to determine his progress. The tests given and the grade levels attained are as follows: Gates Primary Reading Test, Form II, Type I—grade level, 3.3 (mental age, 9); Gates Test of Phonetic Abilities—grade level, 4–5; Morrison-McCall Spelling Scale—grade level, 3.5; Ohio literacy test—grade level, 3; Gates Graded Word Pronunciation Test—grade level, 2.1. It was distinctly encouraging to find that in only one test did the subject show second-grade ability. In the Gates Test of Phonetic Abilities his achievement rated between the fourth- and fifth-grade standards, while his average in all tests showed ability a little better than third-grade level. Although the tests revealed an occasional confusion of *b* and *p* or *m* and *n*, some

subvocal pronunciation, repetition, and substitution, the results in general indicated that the subject had acquired greater speed of reading, increased perception of word differences, ability to blend word elements, and a fluency which indicated intelligent phrasing and attention to content.

Tutoring was continued for ten weeks longer in a special effort to correct the weaknesses which were exposed by the second testing. Distinctions between letters of similar forms were emphasized; special attention was given to consonant blends and word families; and the study of difficult words was continued. Book Three of the

TABLE I

RATINGS ON SUBJECT'S FINAL TESTS

Test	Mental Age	Grade Level
Gates Graded Word Pronunciation Test...	8.1	2.6
Gates Primary Reading Test, Type II, Form II	9.2	3.5
Gates Primary Reading Test, Type III, Form II	9.3	3.6
Haggerty Reading Examination, Sigma 1..	9.6	4
Ohio literacy test	8.6	3.5
Gray Standardized Oral Reading Check Tests	10.0	4
Morrison-McCall Spelling Scale	10.2	4

Child-Library Readers[1] was used as a basic textbook, and more attention was given to exercises for comprehension. Reading of short paragraphs such as those found in the reading scales occupied brief drill periods. After the pupil had accurately read a paragraph aloud, attention was given to speeding up the reading process. The final diagnostic testing was done at the clinic on May 16, 1930, in order to determine the subject's progress during the period of tutoring. The ratings are shown in Table I.

In all but one test the subject attained levels of achievement ranging between the third- and fourth-grade levels. Some of the tests do not take into consideration the practice effect involved in the results when the same kind of test is used to measure improvement. Nevertheless, to the instructor the improvement seemed greater than the ratings of these tests indicated. The boy showed re-

[1] William H. Elson and Edna R. Kelly, *Child-Library Readers*, Book Three. Chicago: Scott, Foresman & Co., 1924.

markable independence in attacking new words and used the syllabication method effectively. He had completely overcome his tendency to reverse reading, and he used no subvocal pronunciation in the tests. He had made considerable gain in phrasing and read with expression. However, when the pupil was encouraged to read faster, his accuracy suffered considerably.

Tutoring was carried on to the end of the school year, and plans were made for a continuation of the tutoring during the summer. In the autumn of 1930 the subject was enrolled in one of the Minneapolis schools with a modified-curriculum room, where attention is given to special abilities and disabilities. The subject will probably never become a rapid reader, but with practice and encouragement he should continue to improve and should be able to do satisfactory work in a trade school after he has completed his elementary-school training.

SUMMARY

1. The subject was thirteen years and nine months of age when he was reported to a child-guidance clinic for diagnosis and remedial teaching. Verbal tests showed that he was somewhat below normal in intelligence, but in performance tests he exhibited advanced mechanical ability. He had marked disabilities in reading and spelling; his ability in these subjects equaled only the first-grade level.

2. The subject was tutored during three short periods each week for about sixteen weeks. The tutor employed a combination of various methods suggested for use in remedial instruction in reading.

3. At the end of the period the pupil had attained a level of efficiency in reading and spelling ranging between that of the third and fourth grades.

4. The results justify the conclusion that a combination of methods in remedial instruction in reading produces marked improvement in the reading of certain subjects. Results from more subjects are needed, however, for proper evaluation of the technique employed in this study.

A COMPARISON OF THE ACHIEVEMENT OF EIGHTH-GRADE PUPILS IN RURAL SCHOOLS AND IN GRADED SCHOOLS

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The opportunity for this study was provided by the second annual state scholarship contest for eighth-grade pupils sponsored by the Kansas State Teachers College of Emporia. The contest was carried on with the co-operation of the county superintendents of public instruction. Each county superintendent desiring to do so conducted a county contest, using the tests prepared by the Bureau of Educational Measurements of the Kansas State Teachers College of Emporia. Fifty-three counties in Kansas conducted contests on April 12, 1930, and more than five thousand eighth-grade pupils in the state participated. The scores of 3,532 pupils were reported for consideration for the state awards.

The contestants competed in two divisions. Division A was open to pupils from nine-month graded schools in villages and cities; Division B, to pupils from eight-month schools in rural districts. Pupils in both divisions took the same tests. Pupils from any school offering eighth-grade work were eligible to enter in one of the two divisions of this event. As a rule, a school was represented by one or two contestants, but in a few cases all the eighth-grade pupils in the county took the tests. As an inducement to schools and pupils, the Kansas State Teachers College of Emporia offered suitable individual and school awards for the winners in each division in the state.

The tests used in this event were printed in a booklet and included questions in each of the following subjects: arithmetic, civics, history, English, reading, and spelling. Each test was of the objective type with true-false, multiple-choice, or completion-type questions. The test items selected covered significant phases of subject matter, and all items were considered to be appropriate for eighth-grade

pupils. The final score for each pupil was the sum of the scores on the separate tests.

The distribution of the scores of the pupils in the two divisions is given in Table I. A casual glance at the distributions gives the impression that the achievement of the two groups of pupils was more nearly equal than would be expected. The pupil making the highest score in Division A (graded schools) made 301 points of a

TABLE I

DISTRIBUTION OF SCORES OF 3,532 PUPILS IN THE KANSAS STATE SCHOLARSHIP CONTEST FOR EIGHTH-GRADE PUPILS

Score	Division A	Division B
300–319	1	0
280–299	13	11
260–279	93	21
240–259	183	103
220–239	335	179
200–219	314	281
180–199	324	317
160–179	262	329
140–159	280	208
120–139	85	115
100–119	25	40
50–99	6	7
Total	1,921	1,611
Third quartile	228.6	213.7
Median	198.7	186.7
First quartile	166.4	162.0
Quartile range	31.1	25.8
Standard deviation	39.6	37.0

possible 328 points; in Division B (rural schools) the pupil making the highest score made 299 points. The lowest scores in the two divisions were also very close. Hence, the ranges between the highest and lowest scores, while surprisingly large, are nearly the same for the two groups. However, the median score of Division A (198.7) is somewhat higher than that of Division B (186.7). Moreover, the first and third quartile scores of Division A are also higher than those of Division B. On the other hand, the quartile range and the standard deviation for Division B are slightly smaller than those for Division A. This fact shows that somewhat less variability existed in the achievement of the rural-school pupils. In general, however,

it may be stated that the variability of the two groups did not differ to any significant degree.

The chief characteristic shown by these two distributions, therefore, is the unexpected similarity in the achievement of the two groups. When the contest was organized, separate divisions were provided for the pupils from the two types of schools because it was thought that the pupils from the rural schools would have little chance to win honors in competition with their more fortunate companions from the graded schools, which provide greater educational opportunities and longer school terms. Obviously, the difference in achievement resulting from these advantages is not so great as one might expect or wish.

In order to make a further analysis of the achievement of the two groups, a more detailed study was undertaken. The papers used for this study were those of a select group. Usually the pupils who competed in the contest were the best pupils in their respective schools, and each county superintendent was asked to send only the ten highest papers from each of the two divisions to the Kansas State Teachers College of Emporia. Thirty-one per cent of all test papers written by the pupils whose scores are given in Table I were used in determining the state winners. For this detailed study 1,084 papers were available, 570 from pupils in Division A and 514 from pupils in Division B.

The quartile scores based on the distribution of scores in each subject in each division for these 1,084 papers are given in Table II. It will be noted that, without exception, the quartile scores of Division A (graded schools) are higher than those of Division B (rural schools). The greatest differences in the quartile scores are found in arithmetic, reading, and spelling—the primary subjects. Smaller differences are found in civics, English, and history, which appear later in the school course. These differences suggest that the better-organized graded schools, with their longer terms, have desirable effects on the achievement of even the more capable pupils and that this effect is cumulative through the years.

The percentage of the scores in each subject in Divisions A and B exceeding the first quartile, median, and third quartile scores of Division B are given in Table III. The table is read as follows:

The first quartile score of Division B in arithmetic—the score exceeded by 75 per cent of the pupils in Division B—was exceeded by 83.5 per cent of the pupils in Division A, a difference in percentages

TABLE II

FIRST QUARTILE, MEDIAN, AND THIRD QUARTILE SCORES OF 570 PUPILS IN DIVISION A AND 514 PUPILS IN DIVISION B IN TESTS ON SIX SUBJECTS

Subject	First Quartile	Median	Third Quartile
Arithmetic:			
Division A	35.0	44.3	51.1
Division B	30.1	39.8	47.0
Civics:			
Division A	37.1	41.0	43.8
Division B	36.5	40.0	43.0
English:			
Division A	35.9	39.4	43.2
Division B	34.8	38.2	41.1
History:			
Division A	28.8	32.2	35.0
Division B	28.5	31.2	33.8
Reading:			
Division A	43.6	49.6	54.3
Division B	39.9	45.9	50.7
Spelling:			
Division A	32.3	38.2	42.7
Division B	28.7	34.9	39.9

TABLE III

PERCENTAGE OF SELECTED PUPILS IN DIVISIONS A AND B EXCEEDING FIRST QUARTILE, MEDIAN, AND THIRD QUARTILE SCORES OF DIVISION B IN SIX SUBJECTS

Subject	First Quartile			Median			Third Quartile		
	Division B	Division A	Difference	Division B	Division A	Difference	Division B	Division A	Difference
Arithmetic	75	83.5	8.5	50	63.0	13.0	25	39.0	14.0
Civics	75	78.5	3.5	50	58.0	8.0	25	32.0	7.0
English	75	80.0	5.0	50	58.0	8.0	25	39.0	14.0
History	75	77.0	2.0	50	58.0	8.0	25	36.0	11.0
Reading	75	85.0	10.0	50	67.0	17.0	25	45.0	20.0
Spelling	75	86.0	11.0	50	65.0	15.0	25	41.0	16.0

of 8.5 in favor of Division A. Likewise, the median in arithmetic in Division B—the score exceeded by 50 per cent of this group—was exceeded by 63 per cent of the pupils in Division A, a difference in

percentages of 13 in favor of Division A. The third quartile score of Division B—the score exceeded by 25 per cent of this group—was exceeded by 39 per cent of the pupils in Division A, a difference in percentages of 14 in favor of Division A.

In every case the differences in percentages are in favor of Division A. The differences for the first quartile vary from 2 in history to 11 in spelling; the average of the differences is approximately 7. The differences in the percentages for the median vary from 8 in

TABLE IV

THE MEANS AND THE STANDARD DEVIATIONS OF THE SCORES OF 1,084 PUPILS IN DIVISIONS A AND B

Subject	Mean	Standard Deviation
Arithmetic:		
Division A	42.3	11.7
Division B	38.2	12.2
Civics:		
Division A	40.1	5.1
Division B	39.4	5.2
English:		
Division A	39.3	5.0
Division B	37.9	4.6
History:		
Division A	31.7	4.5
Division B	31.1	4.5
Reading:		
Division A	48.2	8.0
Division B	44.9	8.1
Spelling:		
Division A	37.0	7.5
Division B	34.0	8.2

civics, English, and history to 17 in reading, the average of the differences being 12. The differences in the percentages for the third quartile vary from 7 in civics to 20 in reading, the average of the differences being approximately 14. The smallest percentile differences occur in civics, English, and history, and the greatest differences occur in arithmetic, reading, and spelling. These facts indicate that the superiority of Division A over Division B was more marked in the subjects of arithmetic, reading, and spelling than in the other subjects.

When one considers the advantages which pupils in graded schools have over those in rural schools, in addition to the extra month of

school each year, it is not surprising that the former should exhibit greater average achievement than do the latter. It is surprising that the differences found in this study are not much larger.

The mean and the standard deviation for each test for the selected pupils in each division are shown in Table IV. The means given in this table are close to the medians given in Table II. The slightly lower values of the means are explained by the negative skewness of the distribution of scores in each subject. The standard deviations are very nearly the same for both groups in each subject. In every subject except English and history the deviation of scores in Division B is slightly greater than that of the scores in Division A; that is, the achievement of the pupils in the limited group in Division B was slightly more variable than that of the pupils in the limited group in Division A, although the differences are negligible.

CONCLUSIONS

1. The distributions of the scores of the 1,921 pupils in graded schools and of the 1,611 pupils in rural schools are somewhat the same except that the measures of central tendency are higher for the former group.

2. The two groups are also alike in variability, although there is a slight advantage in favor of the rural-school group.

3. When the scores of the highest 31 per cent of the pupils are compared, the quartile scores of the pupils in the graded schools are higher in every subject than those of the pupils in rural schools. The mean scores of the pupils in the graded schools are higher in every subject than those of the pupils in rural schools. The fact that the standard deviations for the two divisions are very close indicates that the variability of the two groups was practically the same. The differences in percentages based on the quartile scores of Division B are in favor of Division A in every subject. The differences are greatest in the fundamental subjects—arithmetic, reading, and spelling—and are less noticeable in civics, English, and history. This fact might indicate that the advantage of the pupils in graded schools is greatest in the first years of school when the fundamentals are being acquired—an advantage that is retained through the elementary grades.

Educational Writings

REVIEWS AND BOOK NOTES

Thomas Jefferson on education.—The development of the American public-school system, which took place during the second third of the nineteenth century, seems to have been the product of three major influences. The basic principles of our public-school system have been attributed to New England Calvinism as expressed in the public policy of the Puritans. That the educational ideals and practices of Colonial New England contributed much to the establishment of a democractic school system seems clear; it seems equally clear that the influence of New England Puritanism has been overestimated. A second major influence was the rise of the common man to an important place in our economic and social system. Finally, the emergence of the democratic state, the rise of the common man to a commanding position in politics, had a profound influence on the development of our public-school system. Jeffersonian principles of government and of social organization were in and of themselves a most significant educational influence. Jefferson was not content merely to express his political views; he wrote and worked assiduously in the cause of popular education.

A recent book[1] "aims to present, in his own words so far as is practicable, an account of the contributions of Thomas Jefferson to the progress of education" (p. ix). The first part of the book is devoted to an exposition of Jefferson's services to education in America. The three chapters comprising this part treat of Jefferson's private life and public services, of his efforts to establish a public-school system in Virginia, and of his theory of education. The second part is entitled "Thomas Jefferson on Education." Chapters are devoted to each of the following topics: "Jefferson's Early Efforts in Behalf of Public Education"; "A Bill for Establishing Religious Freedom"; "Plan of a College"; "A Bill for Establishing a System of Public Education"; "Report of the Commissioners Appointed To Fix the Site of the University of Virginia, etc."; "On the Education of a Young Man Destined for Public Life"; "Subjects of Study in Higher Schools and Universities"; and "Jefferson on the Education of Women."

The materials which go to make up the book have been judiciously selected

[1] *Thomas Jefferson and Education in a Republic.* Edited by Charles Flinn Arrowood. New York: McGraw-Hill Book Co., Inc., 1930. Pp. xii+184.

and well edited. Students of the history of education as well as students of American history in general will find the book useful.

NEWTON EDWARDS

A textbook on methods in teaching spelling.—Probably no subject in the entire school curriculum has received as much detailed statistical study as that of spelling. That there can still be much room for argument and personal opinions after all the investigations that have been made is somewhat discouraging to those who would like in their own life-time to see the curriculum based primarily on objective research.

Professor Breed has done a real service to all who are interested in the subject of spelling. His little book[1] is perfectly definite and clear at every step of the way. He attempts to cover the selection of words to be taught, the grading of the words, the organization of lesson units, the direction of study activities, the handling of cases of spelling disability, and the measurement of the results of instruction. Each of these topics he handles specifically and in such a way that any teacher can follow his suggestions. He not only tells how the words should be taught and graded but gives the complete lists of words which he believes should be taught in accordance with the criteria presented.

The book is a bit too much on the defensive. One feels that Professor Breed must have had many bitter arguments with persons taking different points of view from his own. One can fairly hear their attack in his vigorous defense. Much of what he ardently defends will probably be accepted at its face value by the large majority of his readers, for example, his belief that a spelling curriculum should include both the words commonly used by children and the words commonly used by adults.

The reviewer takes serious exception to the following statement:

> Today it is becoming the fashion in such skill subjects as spelling and arithmetic to aim at 100 per cent accuracy on certain specified essentials. This is, of course, a very pretty goal, but as educators we can profitably exchange some of our ideals for a dose of realism. The danger is that we demand the humanly impossible. Better to find out what the real results of good teaching are and aim at these. Then each child will be expected to master as much of the spelling list as his ability permits, and the known standards will indicate the appropriate amount [pp. 56–57].

The known standards may indicate the appropriate amount for the average child in a class, but they give us no idea as to what is the appropriate amount for each child of varying capacity—and there is no subject in which there is a greater apparent diversity in capacity among individual children. In the second place, Professor Breed's assumption is that it is better for a child to learn at random 50 or 60 or 70 per cent of a relatively large list than to learn 100 per cent of a small list carefully chosen to represent the most useful words. In the reviewer's opinion, a child who can only learn a thousand words should

[1] Frederick S. Breed, *How To Teach Spelling*. Dansville, New York: F. A. Owen Publishing Co., 1930. Pp. viii+178.

not be permitted to get along with a 33 per cent mastery of each week's lesson on a three-thousand-word vocabulary but rather should get 100 per cent mastery on the thousand most useful words. The same would apply to the child who is only going to learn two thousand or twenty-five hundred words. We know enough about the commonness of usage of words today so that, if we are going to follow Professor Breed's idea that the "adjustment . . . . should be made in the standards for achievement, which should vary as pupil ability varies" (p. 56), we should first measure pupil ability and then select the words that pupils at each stage should *master*. Such mastery is not "a very pretty goal" but an honest facing of reality and adjustment to it.

On the whole, the bibliographical material in the book is good and reasonably complete. It is unfortunate that Professor Breed has failed to make bibliographical reference to an earlier attempt to combine children's vocabulary and adult vocabulary in a graded curriculum (Carleton W. Washburne, "A Spelling Curriculum Based on Research," *Elementary School Journal*, XXIII [June, 1923], 751–62) and that he has likewise failed to make any reference to the source of the method which he advocates—essentially the Horn-Ashbaugh method—or to a study of a comparison of its efficiency with that of a more fully individualized method (Carleton Washburne, Mabel Vogel, and William S. Gray, *A Survey of the Winnetka Public Schools*, pp. 94–101. Bloomington, Illinois: Public School Publishing Co., 1926). Such omissions, however, are of trivial importance and perhaps are inevitable in such a brief statement of a subject in which the amount of work that has been done is very large.

The book is valuable and stimulating. It is practical and readable and will be an aid to anyone interested in the subject of spelling.

CARLETON WASHBURNE
SUPERINTENDENT OF SCHOOLS
WINNETKA, ILLINOIS

Three tasks in English-teaching.—Blaisdell's new book on the teaching of English[1] will undoubtedly find a serviceable place as a reference book or a textbook in courses for prospective teachers and, because of its concrete suggestive detail, will win favor among those teachers of English who wish definite aid and direction. The publishers characterize the book as "unconventional in character, but well organized for classroom instruction." One wonders, however, whether the title which the author has chosen will not swing the mind of the teacher too far toward formal techniques in the consideration of her problems and magnify procedures at the expense of principles. Undoubtedly method as such has an important first-aid value, but it becomes vital and meaningful only in the light of clear, interpretative concepts of the whole problem. The reputation of special-methods courses in teachers' colleges has suffered in certain quarters through an overemphasis on devices without adequate supporting

[1] Thomas C. Blaisdell, *Ways To Teach English*. Garden City, New York: Doubleday, Doran & Co., Inc., 1930. Pp. x+566. $2.50.

study of determinative principles. In the early part of his book, however, the author sets forth very clearly a point of view with which his recommendations with regard to oral and written composition are thoroughly consistent. It is this part of the book (Part I: "Teaching Self-Expression") which, in the reviewer's opinion, will be found most helpful.

The three tasks of the English teacher as Mr. Blaisdell defines them are (1) teaching self-expression, (2) teaching accuracy, and (3) teaching appreciation. These three topics are taken up in the order mentioned and serve as titles for the three parts of the book. The fundamental thesis of Part I is: "For the normal child oral self-expression is as natural as breathing. The school should use this instinct, not destroy it" (p. 6). The four "principles" of teaching self-expression stated by the author are:

> Ask the pupil to talk about and write about only those things in which he has a vivid interest. . . . .
>
> Base self-expression work on the pupils' experiences. . . . .
>
> Use rather than repress the child's normal desire to tell of his experiences. . . . .
>
> When it seems necessary to delay self-expression, make the delay as brief as possible [pp. 8–10].

Part II of the book emphasizes the importance of drill in forming correct language habits. Many games and other devices for varying the drill exercises are recommended. Part III outlines eight steps in teaching appreciation of poetry and contains discussions of such topics as the uses of detail in literature, developing the reading habit, teaching different literary types, and dramatization.

Three chapters of questions, one chapter for each part of the book, represent a unique feature. The chapters present a wealth of suggestion for introspective consideration. In spite of noticeable omissions, the eight-page bibliography should be of special service to teachers of method and to committees compiling library reference lists for classes. Brief descriptions of available tests are found at appropriate points in the text. At the ends of the chapters are completion tests for the students, problems, exercises, and other suggestions for study.

In most respects the author's recommendations are in keeping with modern tendencies in teaching, particularly in connection with problems of language, composition, and grammar. One finds, for example, approval of cumulative standards for successive grades and clear recognition of the value of self-criticism by the pupils. In support of the latter point the following statement from chapter viii may be quoted:

> *To correct* the written self-expression exercise of a pupil is to throw away time. *To mark* it in such manner that the pupil will be able to correct it himself, and then to see that he does correct it, is to spend time wisely. . . . . Even the marking of papers so that the pupils may correct them should be reduced to a minimum. Therefore self-criticism and classmate criticism should precede teacher criticism. The teacher should seldom, if ever, examine a paper until the pupil has had an opportunity to examine it critically himself. This is as true in the third grade and the sixth grade as it is in the twelfth [pp. 75–76].

The book was evidently organized primarily for use as a textbook for teachers-in-training. Its value lies largely in the concreteness of its style, its rather wide exploration of possible "ways" of teaching, its numerous references for study, and its obvious adaptation for classroom use.

ROY IVAN JOHNSON

HARRIS TEACHERS COLLEGE

The visiting teacher and the rural child.—The Commonwealth Fund has sponsored a number of investigations of the problem child and the work of the visiting teacher. The first volume of a series reporting the findings of the investigations, *The Problem Child in School* by Mary B. Sayles, concerned itself with the urban child and his problems. A second volume, entitled *The Visiting Teacher at Work* by Jane F. Culbert, dealt with the technique of school social work. A third volume,[1] which has recently been published, shows how the technique and principles of school social work can be adapted to meet the specific requirements of the rural-school setting.

The book consists of a number of case studies taken from the records of visiting teachers who worked in three rural counties selected by the National Committee on Visiting Teachers, which was created some eight years ago by the Commonwealth Fund to carry on thirty demonstrations of visiting-teacher work in various parts of the country.

The book is divided into four parts. Chapters in the first part, "The Rural Child and the Community," deal with stories of real children. Some of the interesting descriptive titles are "Showing the World," "Getting Caught," "Chivalry in the Clay Pit," and "Wanted: A Home." There is a chapter giving a general discussion entitled "Community Factors in Maladjustment."

The second part, "The Rural Child at Home and in School" contains the following chapters: "School versus Crops," "'That Flanders Kid,'" "Arithmetic among the Strawberries," and others. A general discussion is also included entitled "Home and School Factors in Maladjustment."

The third part, "Visiting Teacher Work in a Rural Setting," shows well the special advantages and disadvantages and the great opportunity of social work in a rural community.

The fourth part of the book is entitled "Group Work in School and Community."

One is clearly impressed many times by the strategic position which the school holds in rural communities. The best trained people in the rural community will be found in the schools, and it is to them the community will look for leadership. This book shows particularly well the contribution which a social worker who goes out into the rural community, especially trained to discover and deal with social problems, can make to the teacher, the child, and the community as a whole.

It would seem that every teacher or school person who sees the challenge and

[1] Agnes E. Benedict, *Children at the Crossroads*. New York: Commonwealth Fund, 1930. Pp. 238. $1.50.

opportunity in school work will gratefully receive this book which well describes the necessity of a thorough understanding of the school's problems in dealing with maladjusted children. Social case workers, forgetting the difficulties in a rural community, may deal with the book critically, believing that an investigation perchance may have been inadequate and the time consumed on one case very long. However, the book makes a real contribution to the meager literature dealing with rural social work, in which interest is rapidly being aroused. This book will be interesting to anyone who enjoys a well-written, living story.

WILMA W. WALKER

Psychology courses in institutions training elementary-school teachers.—Evidence of the interest of staff and students at Teachers College, Columbia University, in the field of higher education is found in the considerable number of Doctors' dissertations dealing with problems of curriculum, method, measurement, and administration at the college level. The contents of curriculums and the teaching methods in a variety of teacher-training courses have been treated in recent numbers of the Teachers College Contributions to Education.

One of these dissertations[1] deals with courses in psychology in institutions training elementary-school teachers. Part of the monograph is devoted to a consideration of changing trends in courses in psychology. Data were gathered by means of an analysis of the catalogues of thirteen teacher-training institutions covering various periods of time between 1846 and 1927 and by means of a questionnaire to teachers of psychology covering training, experience, teaching load, textbooks, supplementary references, research activities, teaching difficulties, aims, determination of curriculum content in psychology, and student interest in psychology. Present practices in presenting psychology were canvassed through an analysis of the catalogues of 110 institutions, ten textbooks, and criticisms made by 101 teachers of psychology. Classroom difficulties reported by 118 classroom teachers in elementary schools and in junior high schools indicate the variety of psychological problems involved.

The study reveals a decided lack of agreement and of evidence with reference to appropriate aims, curriculum content, and functional effectiveness of courses in psychology. Of course, this statement can be made of any division of the teacher-training curriculum. Possibly such studies as those directed by Charters in his analyses of the pharmaceutical curriculum, secretarial training, and teacher-training furnish basic data for the determination of the content of the teacher-training curriculum.

The investigation under review is open to the criticisms which usually apply

[1] Clara L. Robinson, *Psychology and the Preparation of the Teacher for the Elementary School:* A Survey and an Analysis of Practices in the Teaching of Psychology in Certain Professional Schools for the Preparation of Teachers. Teachers College Contributions to Education, No. 418. New York: Teachers College, Columbia University, 1930. Pp. vi+122. $1.50.

in the case of catalogue and textbook analyses and questionnaire inquiries. Catalogues are inaccurate indications of what actually takes place in psychology classes. Textbook analysis reveals topics which authors think significant rather than material which meets functional needs of teachers. A list of difficulties collected by the questionnaire method may represent a host of petty and irritating situations while partially neglecting fundamental issues; for example, difficulties mentioned in the present study are "powdering nose during music period," "not to bite finger nails," "too much paint used by some girls," etc. The reviewer is of the opinion that this study, as well as a large number of other monographs in the same series, would be more useful had an index and a list of tables been prepared. Taken as a whole, the investigation presents a reasonably comprehensive view of the status of psychology in institutions which train elementary-school teachers.

CARTER V. GOOD

UNIVERSITY OF CINCINNATI

A comprehensive study of student teaching.—In spite of the fact that student teaching has been a part of the curriculums of most normal schools and of most colleges of education for many years, there is as yet a dearth of printed material dealing with the subject. Magazine articles, treatises, theses, and pamphlets, as well as a few books, have appeared dealing with certain narrow phases of the subject; but until the publication of a new book[1] by Professor Mead there has been no comprehensive treatment of the supervision and direction of student teaching.

The author states in the Preface that this book "is the result of an effort to supply a volume which covers various features that are of fundamental importance to a consideration of the laboratory school and its actual and possible functions" (p. ix). It contains material which the author has been collecting since 1914. During the period of collection he acted as chairman of the Committee on Practice Teaching of the National Society of College Teachers of Education and as chairman of the Research Committee of the Supervisors of Student Teaching, and in these positions he collected much valuable data dealing with the supervision and direction of student teaching. This material, together with his own observations, interpretations, and opinions, has been presented in his book.

The book is divided into three parts: Part One, "Basic Conceptions and Theory"; Part Two, "The Student Teacher at Work"; and Part Three, "Important Administrative Phases." The author states: "Part One deals with introductory data, definitions of problems, and the basic theory involved. Part Two describes, to some extent, the actual work of student teaching. Part Three gives consideration to the larger administrative problems" (pp. ix–x). In the first part the author presents the historical background of student teaching and

[1] Arthur Raymond Mead, *Supervised Student-Teaching*. Richmond, Virginia: Johnson Publishing Co., 1930. Pp. xxii+892. $3.00.

the different concepts underlying it. He discusses the nature and determination of outcomes, the value and need of student teaching, the psychology of learning, and the ethics of student teaching. The second part is devoted to a discussion of the activities engaged in by the student teacher and the problems that he meets. In the third part, Professor Mead discusses the work of the supervisors and the directors of student teaching. He points out and discusses the administrative problems encountered. These are concerned with the methods of selection of student teachers, the amount and kind of student participation, the evaluation of student teaching, the function of laboratory schools, their staffs, buildings, types of organization, and legal status. He closes the book with a chapter entitled, "A Short Venture in Utopia," in which he gives the ideal solution to the problems involved in this phase of education.

The book represents a comprehensive treatment of the subject of student teaching from the point of view of the supervisor, the teacher, the student teacher, and the administrator. It is replete with data gathered from many sources. It summarizes much of the printed information available and discusses in detail some of the most important methods of administering student teaching as they are actually utilized in normal schools and colleges of education. The weakest feature of the book is its tables. While most of the tables are exceedingly important, their value is impaired by the fact that many have no captions. This omission is to be regretted, for the book is well written and well organized and makes an important contribution to the literature of education.

It is felt that this volume has attained its aim by assisting in "bridging the gap between theory and practice" (p. 4). It should prove of value to all those interested in the problems of student teaching.

LEE O. GARBER

The relation between intelligence and achievement.—Since the early days of the testing movement the relation between intelligence and achievement has been studied repeatedly from many diverse angles. As measures of achievement, some of these studies have employed promotion records or age-grade status; others, teachers' marks; and still others, the scores on educational tests. A recent book[1] reports an unusually comprehensive investigation of the problem in that it concerns itself with all these indexes of accomplishment in school work.

The content of the book is presented in four parts. Part I, which is introductory in nature, contains a brief statement of the author's theory of education, a short discussion of the nature and measurement of intelligence and of achievement, and a summary of related investigations. Part II reports the statistical phases of the study and includes a chapter in which the results are sum-

[1] Charles W. St. John, *Educational Achievement in Relation to Intelligence as Shown by Teachers' Marks, Promotions, and Scores in Standard Tests in Certain Elementary Grades.* Cambridge, Massachusetts: Harvard University Press, 1930. Pp. xiv+220. $3.50.

marized and interpreted. Part III is devoted to a presentation of case studies which were included in the investigation, and Part IV, consisting of a single chapter, presents a summary of the results and interpretations of the study together with a discussion of the general problem of adapting the schools to individual differences among pupils.

Some idea of the nature and scope of the investigation may be gathered from the following facts. The author employed records covering a four-year period for approximately one thousand boys and girls, about 80 per cent of whom were in the first grade at the beginning of the period. The records included the following data for each pupil: a composite intelligence quotient based on the results of several group and individual tests, standardized test scores in reading and arithmetic, teachers' yearly marks in all subjects of study and in conduct and effort, and records of promotion and failure for the period studied. In addition to the statistical treatment of these many forms of data, case studies of eight selected pupils were also undertaken.

The outstanding characteristic of this investigation is the great care with which the statistical phase was apparently carried out. It is evident that the investigator was aware of the many difficulties and sources of error encountered in a study of this type, and he is to be commended for the careful consideration which he gave to the limitations of his data. The results of the work, which are presented in great detail, are in general similar to those of earlier studies with the exception that interesting additional facts are revealed relative to sex differences. Although the findings are for the most part not new, they serve to re-emphasize the fact that there is frequently a discrepancy between the intelligence and the achievement of given pupils and that there is urgent need for studying the resulting problems.

The statistical part of this study does not, of course, throw much light on the causes of the conditions found, and unfortunately the case studies also have little to contribute in this connection. The number of pupils studied in an analytical way was too small, and the method employed did not in most cases give a penetrating insight into the basic causes of discrepancy between intelligence and achievement. What is needed is a method of analysis applied to a sufficient number of appropriate cases for the purpose of explaining the causes of certain relations found in the statistical part of the study.

The book should prove to be valuable, particularly to the student who wishes to familiarize himself with the problems, techniques, and results of studies in the field concerned. The investigation is very comprehensive, and it confirms the results of those which had already been made. The study itself, therefore, together with the summary of related works and an excellent bibliography which is provided, should make the book interesting for the uninitiated reader.

EDWARD F. POTTHOFF

UNIVERSITY OF ILLINOIS

A new arithmetic for primary grades.—Simplicity characterizes a new two-volume series of elementary arithmetic.[1] "The text is addressed to the pupil in language he can read and understand" (p. iii); yet there is but slight appeal to his imagination, and the verbal problems are so brief that much of the juice of human interest is squeezed out.

There is almost no evidence of attempt to correlate arithmetic with such other subjects as history, geography, and science.

The authors have succeeded in pruning away "obsolete topics and seldom-used numbers," though some readers of these books will think they have clipped too closely. The circle, for example, is omitted, and the learner has almost no training in appreciation of the long numbers that he will meet in this "new day" in the newspaper, in magazines, and in statistical reports. Graphs, however, are well presented and are given considerable space. The various units of both volumes seem to be fairly well proportioned.

The authors say in the Preface of the first book: "In the third grade all the understandings and skills are so basic that differentiation of learning must be in rate alone" (p. v). One wonders whether this statement is supported by factual evidence. In the first part of the book a great deal of emphasis is placed on speed. In the first fifteen pages there appear a total of a dozen such terms as "quickly," "fast," "as fast as you can," "in 2 minutes." Emphasis on speed is made at the very stage when its damage is doubtless the greatest, and this emphasis decreases farther on in the books.

Great stress is laid on checking, whereby the pupil finds his own errors and corrects them, but small emphasis is placed on preventing errors and on the necessity of an attitude of accuracy. However, in these respects the authors are in step with most other recent writers of arithmetic.

The authors attempt to provide an enriched and somewhat differential curriculum for pupils beyond the third grade. They state in the Preface of each book:

> But beyond the third grade there must be an enriched curriculum for those who can profit from it. . . . .
>
> In general a practice exercise is not only graded from easy to more difficult; it is so organized that every pupil will acquire the essentials of understanding and skill by doing the earlier examples and problems, and the quicker pupils may progress to higher levels by doing the later examples and problems [p. v].

The assumption seems to be that the brighter pupil needs more drill than the duller. Although there is obviously some increase in difficulty in the verbal problems for the more rapid pupils, the range of difficulty is not wide. Rather, the brighter pupil is expected to increase his labors much and his reasoning little.

Each unit is given thorough treatment before it is left for another, and there are numerous cumulative drills. There is some very effective material for self-teaching throughout the books.

[1] Fletcher Durell, Harry O. Gillett, and Thomas J. Durell, *The New Day Arithmetics:* Elementary Book, pp. xiv+450; Intermediate Book, pp. xii+452. New York: Charles E. Merrill Co., 1930.

The Intermediate Book has an exceptional graphic presentation of the meaning of fractions. One wonders why this presentation does not appear in the Elementary Book, in which thirty-four pages are given to fractions. Little quick shifting from one learning process to another is called for. Bad exercises like $9+3\div4-2$ do not appear. The authors seem to have made careful effort to avoid confusion in the learner.

No answers are given in either volume. The pupil is told to add *down* and check *up*. The subtractive method of subtraction is suggested throughout, though samples of the addition method appear. The teacher is wisely advised to stick to one method. The basic multiplication and division facts up to nine are taught together and with them the meaning of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, etc. Short division is taught before long division. As a rule, the authors are quite in fashion except that they cut more from the garment and use fewer trimmings and less cloth than most makers of textbooks in arithmetic.

The mechanical makeup of the books is of high grade. Although a surprisingly large amount of material has been crowded into the thousand pages, the general appearance and legibility are good.

Those who prefer the two-volume plan of presenting elementary number work will find many highly commendable features in the *New Day Arithmetics*.

GARRY C. MYERS

CLEVELAND COLLEGE OF WESTERN RESERVE UNIVERSITY

A lively and engaging biography for pupils in the upper elementary grades.—The biographical approach to American history in the intermediate grades is rapidly passing. The bulk of the historical material adapted to pupils in the grades that has appeared during the past few years is not presented in biographical form. Other approaches—such as the chronological, topical, and unit—have been used by the producers of this new material. This fact does not mean, however, that the utilization of lively and engaging biographies in connection with the teaching of history in the upper elementary grades is to be frowned upon. It means, rather, that this type of material is gradually being put to the kind of use to which it is best adapted, namely, that of supplementing the straight historical material existing in textbook form. An excellent piece of supplementary material of a biographical nature has recently appeared.[1] In the matters of style, arrangement, size, and general attractiveness this book, together with its predecessor *George Rogers Clark*, is highly satisfactory for the purpose for which it is intended.

In *A. Lincoln* Mr. Lockridge recounts in language adapted to pupils in the upper grades the outstanding landmarks in the life of this great American. "Kentucky Days," "In Early Indiana," "Hoosier School Days," "The Pioneer Home," and "In Young Illinois" are the titles of the early chapters. Lincoln the

[1] Ross F. Lockridge, *A. Lincoln*. Yonkers-on-Hudson, New York: World Book Co., 1930. Pp. xiv+320. $1.40.

politician, the lawyer, the emancipator, the commander, and the man of the ages is vividly portrayed in other chapters. Emphasis throughout the book is placed on the human aspects of Lincoln's life. Mr. Lockridge wants his young readers to know Lincoln personally.

R. M. TRYON

CURRENT PUBLICATIONS RECEIVED

GENERAL EDUCATIONAL METHOD, HISTORY, THEORY, AND PRACTICE

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